ACQUISITION OF SPANISH MORPHEMES BY MONOLINGUAL, MONOCULTURAL SPANISH SPEAKING CHILDREN

BY

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A DISSERTATION PRESENTED TO THE GRADUATE COUNCIL
OF THE UNIVERSITY OF FLORIDA IN
PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF DOCTOR OF PHILOSOPHY

UNIVERSITY OF FLORIDA

1985

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ACNOWLEDGEMENTS

Appreciation and gratitude are extended to the chairman of my committee, Dr. Linda L. Lombardino, who provided direction and support throughout the planning and development of this dissertation. Her enthusiasm inspited me to undertake this particular research and continues to give me ideas for future research. She was always available for the much needed assistance and direction.

I also wish to express my gratitude to the other members of my committee: Dr. Thomas Abbott for his valuable guidance in planning my academic coursework as well as his helpful suggestions along the way, Dr. Lewis Goldstein for encouraging me to learn more about research and test construction and sharing his own considerable expertise in this area, Dr. Harold Riker for his insights into the world of gerontology and his helpful comments regarding the execution of this dissertation, and Dr. Reynaldo Jimenez for his assistance in the Spanish aspects of this study.

I am deeply indebted to the personnel and teachers from the "Jardin Infantil San Juan Eudes", "Jardin Infantil la Soledad" and "Mi Pequeno Mundo" for their collaboration in recruiting and scheduling subjects for the study. To all the

children who participated in this study, I extend my warmest thanks. Without your cooperation none of this would have been possible. Special thanks go to Pilar Bueno who assisted in the hearing screenings and to Jose Gallo of the Center of Instructional and Research Computing Activities, University of Florida, for his extra hours in conducting the statistical analysis for this study.

Last, but not least, I would like to express my deepest love and appreciation to the members of my family, especially Pam, John Paul and Sonia. My wife Pam´s emotional support and understanding was instrumental in the accomplishment of this professional goal.

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Abstract of Dissertation Presented to the Graduate School
of the University of Florida in Partial Fulfilment of the
Requirements for the Degree of Doctor of Philosophy

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May, 1985

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This study was undertaken to examine the acquisition of nine grammatical categories by young Spanish-speaking children from 30 to 50 months. The subjects included 90 individuals from three distinct socioeconomic classes. All subjects demonstrated motor and cognitive skills within a normal range.

Two experimental procedures were designed to study separately the children´s receptive and expressive knowledge of morpheme formation. Three levels of morpheme development were established (emerging, stable, mastered) according to the percentage of correct responses obtained on the eliciting procedures.

The comparative findings indicate no significant differences between males and females in the comprehension and production of Spanish morphemes. No significant differences in the comprehension of Spanish inflections were found between the three socioeconomic groups. There was, however, a significant dependency between the levels of socioeconomic class and the production of morphemes.

The present findings regarding the relationship between comprehension and production of Spanish morphemes indicate that the comprehension of certain grammatical morphemes precedes production. However, for other grammatical morphemes, production precedes comprehension.

The descriptive findings indicated that there is variability in the children´s ability to comprehend and produce the Spanish allomorphs. In spite of this variability developmental patterns were observed. Acquisition of the receptive and expressive morphemes was determined using two different criteria. Method I was based on the children´s percentage of correct responses. Method II included only children demonstrating 100% mastery of the morphemes. For the receptive grammatical morphemes the earliest morphemes to be acquired were mas, -s, -ero, -o, periphrastic future and -dor. The latest receptive morphemes to be comprehended by the Spanish-speaking children were present indicative, -es, -ando, -a, preterite, -endo and the possessive inflection. The earliest expressive morphemes acquired were -s, possessive, -ando, -a, -endo, -o and -es. The latest expressive morphemes acquired were periphrastic future, -ero, preterite, comparative, -dor and present indicative.

The results of this study provide developmental data on the receptive and expressive acquisition of Spanish morphemes. This information can be used a) as a guideline for further morpheme acquisition studies, and b) as a guideline for determining the content of language intervention for individuals with language disorders.

CHAPTER I
INTRODUCTION

In spite of the growing interest in developmental psycholinguistics across cultures and languages, most of the research in the United States has been conducted on the acquisition of one language--English. However, some research in language acquisition has been conducted in numerous other languages such as Italian, Dutch, Portuguese, French, German, and Russian.

Regarding the acquisition of Spanish morphemes, the disciplines of sociolinguistics and psycholinguistics have contributed toward understanding the nature of Spanish as acquired and used in English speaking communities. Some studies on the simultaneous acquisition of two languages have yielded contradictory data. Bilingual children have been reported to be lagging behind monolingual English-speaking children in their acquisition of English. Some authors have assumed that language acquisition follows the same basic developmental patterns in the bilingual child as in the monolingual child. However, research on the acquisition of Spanish by monolingual, monocultural language learning children has been insufficient to support such an assumption.

As a result of both minimal data on the acquisition of Spanish by language learning children from monolingual environments and the inconclusive data on the language development of bilingual children, questions remain and multiply. Thus, a study of the acquisition of Spanish by children raised in monolingual, monocultural environments is necessary to provide a data base for further research and clinical applications, particularly in the area of Speech-Language therapy with bilingual language disordered children (Spanish/English).

The purpose of the present study was to obtain cross-sectional data on the development and acquisition of morphological structures in Spanish-speaking children born and raised in Bogota, Colombia. Specifically, this study was designed to investigate the receptive and expressive acquisition of morphemes in Spanish-speaking children between the ages of 30 and 50 months, while carefully controlling for socioeconomic status, age, and sex variables.

Review of the Literature

Literature pertinent to the present investigation is reported in five sections. The first section defines English morphology. The second section discusses the pioneer work on morpheme acquisition in English-speaking children. Investigations yielding experimental reports and longitudinal findings are reviewed. The third section presents the findings on morpheme acquisition in Italian and Portuguese children. The fourth section presents a review of Spanish morphology, focusing on those inflections pertinent to this study. The final section presents a description of acquisition data on the development of morphemes in normal Mexican children and in bilingual (Spanish/English) children.

Morphology: A Definition

Language may be defined as "any accepted, structured, symbolic system for interpersonal communication composed of sounds arranged in ordered sequence to form words, with rules for combining these words into sequences or strings that express thoughts, intentions, experiences, and feelings" (Nicolosi et al., 1978, p.113).

The scope of language includes three domains: semantics, syntax, and phonology. Semantics refers to the way meaning is organized in language. The syntactic domain deals with the form, structure, and organization of words in the formulation of sentences. Phonology studies the way the sound system of a language is organized.

The morpheme, one dimension of syntax, is the basic unit in formulating and modulating meaning in a sentence (Muma, 1978). In English, morphemes are organized into two general classes, free and bound. Free morphemes can stand alone (e.g.,tree, table), whereas bound morphemes must be connected with another morpheme (e.g.,abnormal,inaction). Bound morphemes pertain to the affix system. Affixes are word markers or tags that indicate form class or alter the semantic form of words. Those that appear in the initial part of a word are called prefixes and those that occur at the end of a word are called suffixes. Suffixes can be either derivational or inflectional, but prefixes are always derivational. Derivational affixes are primarily lexical (e.g.,boy/boy-ish) and Inflectional affixes are primarily grammatical (e.g.,boy/boy-s).

Acquisition of English Morphology

In 1958, Jean Berko empirically examined the productive knowledge of English morphology in language learning children (e.g.,plural, possessive, past tense). The children she studied were preschoolers and first graders ranging in age from four to seven years. Berko devised a unique eliciting technique which by-passed the possibility of eliciting "learned" behaviors. She used nonsense syllables to examine the generalization of inflectional rules, thereby, eliminating the possibility of testing specific learned responses. For example, in Berko´s test protocol, the examiner would point to a picture of a "wug" and say "Here´s a wug." Then the examiner would point to a second picture with two "wugs" and say "now there are two of them. There are two. . ." The child would be requested to supply the answer "wugs." Adult responses to the materials served as the scoring criteria.

Berko found no significant difference between their male and female subjects. She also found that first graders did significantly better than preschoolers on slightly less than half of the morphemes. Signicant differences were found among the two groups in the formation of the plural, progressive, past tense, and possessive morphemes.

Although testing materials similar to Berko´s have been used in several studies and have been adapted for use with other languages, Anisfeld and Tucker (1967) criticized the Berko methodology because of its failure to provide a full index of morphological development. Moreover, these authors have delineated the following short comings: a) Berko´s test did not evaluate the receptive aspect of morphological development; b) the test did not examine the child´s ability to form the singular given the plural; c) the test provided an inequal distribution of the allomorphs; and d) since the task was always constructed in the same way, both morphological and syntactical constraints influenced the children´s responses. Similarly, Natalicio and Natalicio (1969) stated that by including one real English word in the test (glass), the procedure "could be described as unfortunate and not at all convincing demonstration of the child´s internalized English model" (p.212).

In a landmark publication, R.Brown (1973) reported the findings of a longitudinal study of morphological development. The subjects of this study were three monolingual English-speaking children (Eve,18 months; Adam, 27 months; and Sarah,27 months), who were beginning to combine words into two word phrases. Samples of the children´s language were audiotaped and on-site transcriptions of the children´s spontaneous speech were made while the children interacted with their caretakers.

After analyzing the data obtained, Brown (1973) outlined five stages of early language learning. These five stages of cumulative complexity were described as follows: Stage I, semantic role and syntactic relations; Stage II, grammatical morphemes and the modulation of meaning; Stage III, modalities of the simple sentence; Stage IV, embedding one sentence into another; and Stage V, coordination of simple sentences and propositional relations.

During Stage I, the children´s speech contained nouns, verbs, and adjectives. Brown called these contentives because they made concrete reference to persons, objects, actions, and qualities. Stage II was characterized by the acquisition of "functors." Functors or function words are words or word parts that mark grammatical structures and carry subtle meanings such as, inflections, auxiliary verbs, articles, prepositions, and copulas. Brown referred to the presence of the two grammatical forms, functors and contentives, as "grammatical morphemes." He used the term to refer to morphemes whose primary purpose is either to modify the meaning of the major content words (e.g.,nouns and verbs) or to indicate the relations of the content words (eg.,possessive inflection).

Brown used Cazden´s (1968) criterion for acquisition to determine the children´s acquisition of morphemes. A morpheme was "acquired" when it was used correctly in 90% of its obligatory contexts in three two-hour samples. During Stage II, the children acquired the morphemes "-ing," plural, and "in." In Stage III, the children acquired the morphemes "on," and the possessive form (e.g.,Mommy´s shoe). In Stage IV, the children acquired the regular and irregular past tense, the regular third person singular, the articles "a," "the," and the contractible copula "be." Finally, in Stage V, the children acquired the contractible auxiliary "be," uncontractible copula "be," uncontractible auxiliary "be" and the irregular third person singular.

As a result of the longitudinal research, Brown (1973) developed the concept of mean length of utterance (MLU), as a general measure of linguistic complexity in morphemes. Prior to this, the mean length of response (MLR) was used to measure complexity of each word combination. The corresponding MLU values for Brown´s five stages of language development were as follows: Stage I (MLU range of 1.00 to 2.00 morphemes); Stage II (MLU range of 2.00 to 2.50 morphemes); Stage III (MLU range of 2.50 to 3.25 morphemes); Stage IV (MLU range of 3.25 to 3.75 morphemes); and Stage V (MLU range of 3.75 to 4.25 morphemes).

Based on Brown´s work (1973), deVilliers and deVilliers (1973) attempted to predict the presence or absence of certain morphemes given children´s MLUs. They conducted a cross-sectional study of 21 English-speaking children between 16 and 40 months. Speech samples from each of the children were taken from two one-and-a-half-hour play sessions. The MLU was calculated for each child and the 14 morphemes were scored as present or absent in obligatory contexts. Transcripts providing five or more obligatory contexts for a given morpheme were used.

Due to the nature of the investigation, deVilliers and deVilliers did not follow Brown´s criterion for morpheme acquisition of 90% in three consecutive speech samples. Instead, the morphemes were ordered according to two methods. In the first method, morphemes were ranked according to the lowest MLU values at which each morpheme first occurred in 90% or more of the obligatory contexts. In the second method, the percentages for each morpheme were summed across all children, averaged, and ranked.

When the two methods were compared, the authors found that the morphemes that developed first included present progressive, on, plural, in, and past irregular. Next, the following morphemes appeared: articles, possessives, third person irregular, contractible copula, and past irregular. However, according to Method II, the possessives were among the last to be acquired. Both methods showed third person regular, uncontractible copula, contractible auxiliary, and uncontractible auxiliary, to be the last morphemes to be acquired.

The rank order correlation between Methods 1 and 2 was +0.87. According to the authors, this high correlation indicates that morpheme acquisition shows a fairly similar ordering regardless of the sampling procedure. The rank order correlation between age and MLU was +0.76. The correlation between age and percentage of morphemes was +0.68. The correlation between MLU and morphemes was +0.92. de Villiers and deVilliers concluded that MLU is a better predictor of the acquisition of morphemes than chronological age, especially in the early stages of language acquisition.

Although the studies conducted by Brown (1973) and deVilliers and deVilliers (1973) did not control for variables such as sex, socioeconomic status, and parental education, the data show a high degree of correspondence between the two studies regarding the acquisition of inflectional morphemes. Only one major discrepancy between the studies was found. deVilliers and deVilliers found that their children produced the contractible forms of the copula and auxiliary "be" before the uncontracted forms, whereas Brown reported that the uncontractible forms occur first.

Morphological Acquisition in Other Languages

Acquisition of Morphemes in Portuguese

Perroni and Stoel-Gammon (1979) studied the development of person markers on verbs in language learning children. They conducted a longitudinal study of the speech development of four Brazilian children, ranging in age from 1 year-8 months to 2 years-1 month at the beginning of the study and 2 years-2 months to 3 years at the end of the study. The data presented by the authors were based on the speech of one female child, with data from the other three serving as supplemental evidence. Data from the single subject was obtained from fifteen tape recordings which were made while the child interacted with her parents. In addition, throughout the eleven month study, the child´s mother took notes on her daughter´s speech development.

The authors reported that in the initial stages of language acquisition, the children rarely marked the present perfect tense to person. Almost all verbs in the child´s speech were in the form of the second/third person singular, regardless of the intended subject. For example, the child used the verb gosta "like" (second/third person singular) in reference to herself "I like." From 2:1 to 2:4 the child inconsistently used the first person singular, however, the verb remained in third person singular such as, Carina ´ta aqui "Carina is here." By the age of 2:4 to 2:5 usage of the first person singular increased and it appeared regularly on present tense verbs and on perfect tense verbs by approximately 2 years-7 months. This age difference in the acquisition of the first person inflection in the two tenses suggested the use of different morphological rules. Thus, the authors found that for all children, the development of first person endings on perfect tense verbs was not nearly as regular as these endings in the present tense. For example, when the child was 2 years-5 months old, 100% of the verbs in the context of first person singular were inflected with a first person ending, while in the following session (2 years-6 months) only 33% of the verbs showed first person inflections. Verbs in the imperfect tense appeared inconsistently in the child´s speech after the age of 2 years-5 months. Their use was generally restricted to responses to adult questions in which the imperfect tense was used. Unlike the other tenses, there is no distinct marker for first person singular, imperfect tense. Instead, it is identical to the second/third person singular form.

Between the ages of 2 years and 2 years-9 months, the majority of the verbs produced by the child were in the imperative form. The other finite verbs in the early sessions were in the indicative mood, simple present tense (about 26% of the total) or perfect tense (about 12%). Infinitives verbs were used correctly. However, there was inconsistent usage of the present progressive and future tenses. By the age of 2:7 to 2:8 years the variety of tenses and moods of the verbs were about the same, but the frequency of occurrence of the various types had changed somewhat; the percentage of present and perfect tense verbs had increased while the use of imperatives declined.

These data suggested that the development of person-number and tense-mood-aspect markers in Portuguese are acquired earlier than those marking person. Perfect tense inflections occurred early in the child´s speech but only on verbs expressing a completed action in the immediate past. According to the researchers, this limited use of the perfect tense might be a universal aspect of language development. In contrast, the early distinctions in person-number do not seem to be limited by semantic features of the verb, rather, they are linked to tense markings.

Acquisition of Morphemes in Italian

Bates and Rankin (1979) investigated morphological development in Italian children. They used both longitudinal and experimental procedures to study the development of adjectives vs. inflections for the expression of size and values concepts (e.g.,good/bad). In their longitudinal study, data were obtained from two middle class subjects (Claudia and Francesco) whose language production had been studied between the ages of 1:3-2:9 and 1:4-3:9 years. Audiorecorded home visits averaging two hours were made biweekly. Transcripts of the children´s speech were made while the children interacted with adults. Longitudinal data were extracted from the transcripts and included all child productions of adjectives or attitudinal inflections involving attribution of size and positive or negative value inflections.

The criteria used by the authors to establish that a morpheme was used productively included 1) evidence that the child used more than one form for the same root word, and 2) evidence that variations on the same lexeme were used to refer to the same as opposed to different things.

The acquisition of adjectives and inflections for size and value were divided into two periods. The first phase, from the beginning of the transcripts to 1 year-8 months contained no evidence of either understanding or an attempt to encode size or value concepts. The second phase which began around 1 year-8 months in both children, and continued through 2 years-6 months contained many morphological acquisitions.

The authors found that during the first period (1:3-1:8) the female subject used her first adjective to describe smallness Etto uno piccoletto.Un altro Picoletto. . ."This one is small-etto. Another small-eto one. . ." From 1:9 to 2:0 years, the child increased her use of adjective references to objects (e.g.,small, large, ugly, beautiful, and bad). These adjectives appeared with diminutive suffixes and in root form. Both were correctly inflected for person and number.

Throughout the second period (1:8-2:6) Claudia seemed to use more than one of the diminutives and augmentatives for each lexical root (e.g.,capellino/capelleto "hat-small"). By the age of 2:6 years, Claudia used more compounds, modifying the amount of both size and value expressions (e.g.,un pocchino cattivo "a little-ino bit bad").

Like Claudia, at 1:8 years Francesco began to use size adjectives for the first time. Beginning at 1:10, the number of adjectival references increased, including not only piccolo "small" and grande "big", but also value adjectives like buono "good." In contrast with Claudia, Francesco did not use attitudinal inflections until several months after size and value concepts were both established in adjective use at the age of 2:0 years. The augmentative inflection appeared in Francesco´s speech at 2:5 years. During the following weeks, a variety of diminutive and augmentative contrasts for both adjectives and inflections appeared, such as macchinona di corsona "car-big for racing-big." As with Claudia, Francesco used more than one alternative form for both the diminutive and the augmentative (e.g.,-ino vs. -etto). He also used inflections almost entirely to express size, with value expressed through adjectives (e.g.,dogino "dog-little").

In the second part of the investigation, Bates and Rankin (1979) designed an experiment to explore the role of connotative (e.g.,information about the speaker´s feelings concerning an object) vs. denotative factors (e.g.,references to attributes of objects) in the acquisition of attitudinal inflections.

The authors compared two groups, a control and an experimental group. The experimental group consisted of 84 middle class children attending preschools in the Rome area. The children ranged in age from 2:0 to 6:0 years, with approximately the same number of boys and girls at each 6-month level. The control group consisted of 14 middle class adults, residents of Rome. These authors used a procedure similar to Berko´s (1958). The comprehension test contained a general morphology section and an attitudinal inflection portion in order to separate the relative contribution of size vs. value in the child´s comprehension of five inflections including three diminutives (-ino, -etto, -uccio), one augmentative (-one), and one perojative (-accio). The inflections were represented in 15 drawings.

After the completion of the test, each child was shown two more drawings, to obtain additional information about comprehension of adjectives for size and value. The same procedure was used for the adult controls.

Results of this experimental study indicated that nearly all the children were able to choose correctly the small vs. large figures (adjectives). On the morphology items, the majority of the children had mastered the masculine plural and the singular gender contrast. However, the feminine plural posed a problem for some of the younger children. The researchers concluded that all the children were in the process of acquiring noun morphology; hence they were not limited in the attitudinal inflection task by a general inability to deal with inflections. These findings were consistent with the longitudinal evidence for Claudia and Francesco, in which the concepts of size and value were expressed with adjectives by two years of age.

The results for the attitudinal inflection portion of the experiment suggested that morphological acquisition goes beyond the age of 6 years with regard to comprehension of the value connotations for size inflections. Thus, children between the ages of 2 and 6 seemed to base their test choices exclusively on the information available in the size difference. The authors suggested that the children understood the Italian attitudinal inflections system as a means for expressing size only and that they had not yet defined the inflectional system as a system for encoding evaluative information

When comparing responses between the experimental and control groups, the adults used both size information and value information to interpret size inflections.Furthermore, the adults seemed to differ in the extent to which they weighted the connotative meaning against the denotative meanings for these inflections. Children, on the other hand, used size information in the comprehension of attitudinal inflections. In addition, the diminutive, which is acquired earliest, is the one that adults interpreted most clearly as size expression. The inflections that adults interpreted in more connotative terms were the ones that children acquired later.

Spanish Morphology

Since Spanish and English are cognate languages, that is, genetically related languages, they show similarities in the classes that are characterized by inflectional affixes. The Spanish language inflects nouns, adjectives, verbs, and pronouns. The English language inflects all these except adjectives. Differences between Spanish and English lie in the number of distinct forms and in the inflectional categories used in the respective languages. For example, nouns in Spanish are inflected for number only whereas English nouns are inflected for both number and possession. Spanish verbs have five categories which produce a total of forty-six or forty-seven distinct forms. This compares with only four or five distinct forms for English verbs. According to Stockwell, Bowen, and Martin (1965), Spanish and English, although similar in many ways, are difficult to compare within classes (e.g.,nouns, adjectives, verbs). The inflectional categories do not match in any of the word classes, therefore, these forms do not allow for one-for-one cross language equivalents.

The broadest and most comprehensive classes of morphemes in Spanish are stems and affixes. In general, stems are the centers of words, and affixes are subsidiary to stems. Affixes can be of two kinds, inflectional and derivational. Inflectional affixes are primarily grammatical whereas derivational affixes are primarily lexical. That is, certain inflectional affixes are characteristic of certain word classes; they rank the grammatical categories (e.g.,gender,tense,number,etc.) of the language. For example, to a base form casa "house," a suffix "-s" can be added to form the plural casas "houses." On the contrary, derivational affixes often shift a stem from one word class to another and are applied only to a segment of the stem in any class. For example, from persona"person," we can derive personaje "personage."

The Spanish language inflects nouns, adjectives, and verbs. All inflectional affixes are suffixes attached to the end of stems. The class noun is associated with an inflectional category, number. To a base form, which is singular, there can be added a suffix "-s" which converts the form to plural. This final "-s" is never added directly to a stem which ends in a consonant. When a stem ends in a consonant, an "-es" is added. Spanish adjectives have inflections for two categories, number and gender. Plural adjectives are formed by adding a suffix "-s" or "-es." The normal rule for gender requires alternations between the gender suffixes "-o" and "-a" which appear at the end of the stem, for masculine and feminine genders respectively. Each Spanish noun has an inherent grammatical gender, therefore, it is not inflected for gender (Stockwell, Bowen, and Martin 1965).

The Spanish verb is highly complex. Verbs are inflected for finity (finite and non-finite), tense, aspect, mood, person, and number. These five categories produce a total of 46 or 47 distinct forms. Spanish verbs can be classified in two ways, by their class and by the extent to which their paradigms can be predicted by general rules. There are three main classes, designated by the theme vowel which appears with the infinitive stem: "-ar," "-er," "-ir." The extent of paradigmatic predictability establishes regular and irregular sets. Verbs are said to be regular if they follow a single paradigm of stem formations and affixation. All verbs which deviate from this general rule belong to the irregular sets. Examples of regular and irregular verbs follow:

Regular Verbs

Finite Form		3rd Person Singular
habl-ar	"to talk"	habl-a
com-er	"To eat"	com-e
viv-ir	"To live"	viv-e

Irregular Verbs

Finite Form		3rd Person singular
cont-ar	"to count"	cuent-a
volv-er	"to return"	vuelv-e
ped-ir	"to ask"	pid-e

As shown above, the stem is stable for the regular verbs but involves a specific stem vowel change /o/--/ue/ and /e/--/i/ for the irregular verbs.

Inflectional morphology is relatively easy to describe because the rules are limited and can be applied to all members of a class or subclass. Moreover, many of the choices are obligatory with important consequences. For example, the selection of casa and viej "house old" necessarily results in casa vieja. Derivational morphology, on the other hand, is characterized by a large number of rules, some with very limited application. For example, from cuchara "spoon" we can derive cucharon, but from carne "meat" there is no equivalent form (e.g.,carnon).

Acquisition of Morphemes in Spanish

Only one study, to the author´s knowledge, has investigated the acquisition of morphemes in Spanish-speaking children from monolingual environments. Kernan and Blount (1966) investigated the internalization of Spanish grammatical rules in older language learning children. Their subjects were 47 boys and 45 girls ranging in age from 5 to 12 years. All children came from a small city in Mexico, characterized as "lower socioeconomic in status." The authors used a modification of Berko´s (1958) procedure for testing morphological endings. A nonsense test was designed, which consisted of 20 simple line drawings of cartoon-like characters depicting an animal or object. As realized in the test, the morphemes (four derivational affixes and five inflectional) were distributed in the following way: plural "s"(2), "es"(1), diminutive (2), agentive "dor"(1), place of business "eria"(1), agentive "ero"(1), future (2), imperfect (3), preterite (3),and present perfect (3).

Due to difficulties in eliciting responses from the subjects, the researchers proceeded through each series of questions with an example question which used a real noun or verb. In spite of this change in procedures from Berko´s study, the authors felt "that the use of examples did not affect the reliability of the test"(p.3). The sole expressed purpose of using real words was to familiarize the subjects with the testing procedures.

The sample was divided into three age groups. Differences in the number of correct answers given by each age group were calculated for the ten grammatical categories. In addition, the researchers computed the percentage of correct answers given by each of the three age groups for each of the 20 test items. Differences in responses between male and female subjects were computed for each age group and for all inflectional categories.

The results of this investigation indicated that the group as a whole had very little difficulty in the formation of noun plurals ending with a vowel. Over 98% of the answers given for vowel-ending nouns were correct. However, for nouns ending in a consonant, the plural allomorph "-es" did not improve with an increase in age up to 12 years, indicating a much slower acquisition of this grammatical form.

Significant differences were found among age groups for the formation of nouns-diminutives. For the 5-7 age group, the percentage of correct responses was 48.4%; for the 8-10 age group, 75.6%; and for the 11-12 age group, 82.4%. Contrary to the formation of the plurals, there was a marked improvement with an increase in age for this category, especially by the older group. In the agentive category, the children as a group formed the agentives correctly 67.7% of the time; the only significant differences between adjacent groups occurred for the place of business suffix.

For the inflections of the verbs, there was an increase in the percentage of correct answers between each age group for all tenses tested except the past tense imperfect (see Appendix A).

The significant progression in number of correct verb inflections indicated a progressive internalization with age. This was particularly marked for all "-ar" verb endings. However, the past tense imperfect was an exception to the progression, showing no significant improvement with age.

The mean percentages of correct answers for the groups combined were future tense 51.2%, present perfect 56.0%, past tense imperfect 52.1%, and past tense preterite 50.6%.

The last category tested was the formation of the possessive "de," for both singular and plural nouns. The percentage of correct responses was high for each age group (above 90%), indicating that by the age of five, the grammatical rule for the formation of the possessive had been internalized and used consistently by these children.

The order of inflectional difficulty for the children in the 5-7 year group was as follows: plurals were the easiest, followed by agentive "-dor", diminutives, imperfect, place of business, agentive "-ero," present perfect, preterite and future.

Natalicio and Natalicio (1969) criticized Kernan and Blount´s study because they did not compare sex differences within the plural category ("s" and "es"). Natalicio and Natalicio argued that the "plural grammatical category" should not be considered as one category, but rather as two plural allomorphs "-s" and "-es." They stated that since Blount and Kernan did not compare male and female responses within the plural category, no valid statements could have been made about the elements making up any given grammatical category.

Martinez-Bernal (1972) studied the linguistic repertoire of bilingual children. The bilingual children ranged in age between 5 and 8 years. Martinez-Bernal used a procedure similar to Berko´s (1958) and Kernan and Blount´s (1966). She used two tests to investigate nine inflectional categories. One test contained nonsense items and the other one real language items.

The findings in the Martinez-Bernal study indicated that for the Spanish morphology, the younger group (5-6 years) performed better than the older group (6-8 years) in several morphological categories. Her explanation for such performance was based on sex differences. She stated that the younger group was comprised of 6 girls out of a total of 9 children, and girls as a group did signicantly better than boys in Spanish morphology. Moreover, the possible superiority of the younger group could have been accounted for by the fact that in the older group, English was spoken at home, thus affecting the acquisition of Spanish. In reference to the use of real language items to test inflectional categories, Martinez-Bernal corroborated Kernan and Blount´s hypothesis that there was no significant difference in performance between children who had the advantage of real language samples and those who did not.

Statement of the Problem

A review of the literature on Spanish morphological acquisition indicates that a study on the comprehension of morphemes by Spanish-speaking children has not yet been conducted. Moreover, normative data on the emergence of Spanish grammatical morphemes in the language of monolingual, monocultural children below the age of five years is nonexistent. Only one study has reported on the occurrence of inflectional categories in obligatory contexts, for children beyond the five year level. Therefore, an investigation of morpheme acquisition during the early years of language development in terms of comprehension and production is warranted.

Whether monolingual Spanish-speaking children learn to comprehend and produce grammatical morphemes at the same ages as bilingual (Spanish-English) children is not known. The lack of data from research on monolingual, monocultural Spanish children has made group and/or age comparisons with bilingual children one-sided. An analysis of the comprehension and production of inflectional morphemes by monolingual Spanish-speaking children raised in a monolingual environment would be beneficial to researchers and clinical speech-language pathologists for diagnosis and intervention.

Statement of the Purpose

This study was designed to investigate the acquisition of thirteen Spanish morphemes by monolingual Spanish-speaking children between the ages of thirty and fifty months from Bogota,Colombia. This investigation would provide preliminary data for test development for use with Hispanic children. Furthermore, by examining the performance of monolingual Spanish-speaking children, a more appropriate diagnostic and treatment decisions will be made regarding the development of morphemes in children suspected of having language disorders. The following comparative and descriptive questions were investigated.

Comparative Questions

1. Do Spanish-speaking males differ from Spanish-speaking females in their a) comprehension of Spanish morphemes and b) production of Spanish morphemes?
2. Do children from the low, middle, and high socioeconomic classes differ in their a) comprehension of Spanish morphemes and b) production of Spanish morphemes?
3. Do children differ in their acquisition of the thirteen Spanish morphemes on the receptive and expressive eliciting procedures?

Descriptive Questions

1. At each age level, what percentage of correct responses was obtained for the children at a) an emerging level (50-74%) of comprehension and production for each of the Spanish morphemes and b) a stable level (75-100%) of comprehension and production for each of the Spanish morphemes?
2. At each age interval which morphemes show an a) emerging level (50-74%), b) stable level (75-100%), and c) mastery (90-100%) of acquisition for the receptive and expressive tasks respectively?

Limitations and Strengths of the Study

The design of the present research imposed certain limitations. It is a cross-sectional study which investigated the children´s knowledge of morphemes on only one occasion. Because of time limitations, a context-controlled procedure was used as a data gathering technique. The number of children in each age level was limited. The population sample represented Spanish-speaking children from Bogota,Colombia only; therefore, generalizations to other populations need to be made cautiously.

Although longitudinal studies are invaluable in discerning the developmental progression of morpheme development, the cross-sectional nature of this study makes it possible to study greater age ranges and numbers of children. Unlike the studies cited on morphological development this research compared the children´s production and comprehension of morphemes. Similarly, each morpheme was tested twice per test. Finally, This study controlled some variables not addressed in previous studies such as sex and socioeconomic status.

CHAPTER II
METHODS AND PROCEDURES

Subjects

The purpose of this study was to investigate the acquisition of Spanish morphemes in children. The experimental subjects were native speakers of Spanish born in Bogota, Colombia. All children were enrolled in day care centers.

Criteria for Subject Selection

Several a priori criteria were established for subject selection. First, children between the ages of 30 and 50 months were considered for this study. Second, children were required to exhibit normal motor functioning and cognitive abilities within a normal range, as measured by "Escala de desarrollo mental de Griffiths modificada: adaptacion para la poblacion de Bogota, Colombia (I.C.B.F.,Harvard-Giessen,1968) (Griffiths´ Scale of Mental Development Modified: Adapted for the population of Bogota,Colombia). For the purpose of this study, the Bogota norms were used. Third, children were required to exhibit hearing within normal range as measured by a standard audiometric screening procedure. Children who did not meet the three criteria were excluded from the study.

Description of Subjects

Ninety experimental subjects, who satisfied the above criteria, were recruited from a variety of sources: thirty from "Jardin Infantil San Juan Eudes;" thirty from "Jardin Infantil la Soledad;" and thirty from "Mi Pequeno Mundo."

The subjects consisted of forty-six males and forty-four females between the ages of 30 and 50 months (male mean age 40.08 months; female mean age 40.72 months). In order to insure normal range for motor and cognitive abilities, Griffiths´ scale was administered by a professional psychologist. Normal hearing was assessed by a hearing screening at 30db HL for the frequencies of 250 through 4000Hz. Audiometric screening was conducted by a qualified speech-language pathologist using a portable audiometer.

Determination of socioeconomic status (SES) was based on the location of the day care center as established by the "Departamento Administrativo Nacional de Estadistica (DANE)" in 1983. In their view, geographical location is the best measure of SES since it is the major indicator of economic resources, prestige, status and interests. Thirty subjects were drawn from each of the day care centers to represent high, middle, and low socioeconomic classes.

Development of Morphology Eliciting Procedures

Although the purpose in designing this study was not to develop a test but rather to develop procedures for eliciting responses containing Spanish morphemes, general guidelines for test construction were followed.

F.Brown (1983) defines a test as "a systematic procedure for measuring a sample of behavior" (p.8). Brown uses the term to refer to a test that is constructed, administered, and scored according to certain rules. The first step in test construction is to specify the purpose of the testing procedure and the nature of the construct to be measured. The next step is to construct the test. This process requires the development of certain procedures that accomplish the desired purposes through application of the principles of measurement. The steps in developing such measures are based on three aspects of the process: specifying content, administrative conditions and scoring.

The expressive eliciting procedure was constructed to measure the children´s productive knowledge of certain Spanish grammatical morphemes. Line drawings representing objects, people and actions were developed and used with sentence completion procedures to elicit the desired morphemes. For the receptive procedure, a target picture and three foils were created and paired with declarative sentences containing the selected morphemes.

Eliciting Procedures and Materials

A receptive morphology eliciting procedure (see Appendix D) and an expressive morphology eliciting procedure (see

Appendix E) were constructed to assess the ability of Spanish-speaking children to comprehend and produce Spanish grammatical morphemes. Each eliciting procedure used 26 word stimuli. The expressive eliciting procedure was, for the most part, a modification of the methodology used by Berko (1958), with nonsense syllables. The linguistic framework utilized in Berko´s study has been proven useful in directing the subject to complete a statement by supplying an appropriate element. Recent research on morphological acquisition in English speaking children has shown that children´s scores are better and more regular on items where real words are used as stimuli (Dever and Gardner,1970; Dever,1972; Pettit and Gillespie,1975). Because the use of nonsense words in sentence completion tests may underestimate a child´s productive knowledge of morphological rules, only lexical items were included in the present study. The receptive eliciting procedure was designed to follow the format of the Peabody Picture Vocabulary Test (Dunn,1965). Two equivalent forms (A,B) of the expressive and receptive eliciting procedures were developed in order to control for the possible influence of test item order on performance. The line drawings used as visual stimuli were black and white, except for the expressive gender morpheme stimuli. These line drawings represented real animals, objects, and people performing actions (for examples see Appendixes B and C). Stimuli for each procedure were mounted on cardboard cards and bound into two notebooks.

The grammatical items investigated in this study were selected because a) they were determined to be common morphemes that are used in Spanish-speaking countries; b) they are "functor" or function words as defined by R.Brown (1973); c) they are present in the expressive language of Spanish-speaking preschool children as determined by the pilot study done by Olarte and Lombardino (1983); and c) they are forms described in previous studies on morphological development in Spanish-speaking children. A total of 12 morphemes were selected. In addition to the 12 morphemes, the periphrastic future form was included. The morphemes were further subclassified into inflected morphemes (plural, present progresive, agentive, gender, preterite, present indicative) and uninflected morphemes (possessive, comparison). Included in this study are six morphological inflections, four of which have two allomorphs. Tables 1 and 2 describe the categories and items examined by the receptive and expressive procedures respectively.

Assessment Procedures

All subjects were tested individually by the investigator, a native Colombian speaker of Spanish. For each child, testing was conducted in two sessions scheduled on the same day. The time required for the expressive eliciting procedure was approximately twenty minutes for each child. For the receptive eliciting procedure, the time required for testing was approximately fifteen minutes for each child. Prior to the actual testing, the investigator visited the children´s classrooms and with the collaboration of their teachers, conducted play situations in which the participating children selected were informally encouraged to respond to items such as "Here I have one dog (investigator/teacher pointing to a toy dog). Now I have two. . .(investigator/teacher pointing to two toy dogs)"; or while the teacher performed an action (e.g.,eating), the investigator asked the children "What is she doing? She is. . ."

Testing was conducted in a quiet room within each day care center. The investigator always conversed with the child prior to the assessment in order to establish rapport. The eliciting procedures were presented in a predetermined randomized order to all children. The receptive eliciting procedures were given to half of the children first while the other children were first tested with the expressive eliciting procedures. Receptive and expressive test forms (A and B) were chosen randomly for each child. Before administering the expressive eliciting procedure, the child was told: "I am going to show you some pictures and I want you to give me the word that is missing. For example (investigator pointing to a picture of a book) see here, there is a book; (showing the next card and pointing to a picture of books), now there are two_____."

Receptive knowledge of the morphological rules was assessed by requiring the children to point to a picture named by the investigator. The instructions given to each child were "I am going to show you four pictures and I want you to show me the one I am talking about. For example, show me______."

For both eliciting procedures, each child was given two practice items to ensure knowledge of the task before beginning the actual assessment. If a child missed the first practice item, the correct answer was given. If the child missed the second practice item, the child was excluded from the study.

Scoring Procedure and Data Reduction

For each grammatical category tested, the children´s responses were categorized as correct or incorrect, according to the investigator´s knowledge of standard Spanish grammar and the responses given by adults in the pilot study. Within each grammatical category, responses were scored as follows: 100% if the child answered both items correctly; 50% if the child answered one item correctly; and 0% if the child missed both items.

Validity and Reliability of Procedures

The most simple definition of validity is that "it is the degree to which a test measures what it is supposed to measure" (Gay,p.165,1980). There are two major types of validity: content validity and construct validity. Content validity is the degree to which a test measures an intended content area. Content validity requires both item validity and sampling validity. Item validity is concerned with whether the test items represent measurement in the intended content area. Sampling validity is concerned with how well the test samples the total content area. Content validity is determined by expert judgment. There is no formula for computing it and there is no way to express it quantitatively. For the current study, members of the supervisory committee were asked to assess the content validity of the procedures. One committee member, who is a native Spanish-speaker and teacher of the Spanish language, assessed the appropriatness and accuracy of the Spanish morphemes included in this investigation.

Construct validity is important whenever a test is designed to measure some attribute or quality (construct) that people are presumed to possess. A construct is a non-observable trait, such as intelligence, which explains behaviors. To determine the construct validity of a test, one must examine the entire body of evidence surrounding the test, for example, items included on the test, the stability of the test scores, the homogeneity of the test, and any other data that could clarify the meaning of test scores.

In order to assess the construct validity of the receptive and expressive eliciting procedures, a pilot administration was conducted. The procedures were given to six adults and three 5 to 6 year old Spanish-speaking children, who were chosen randomly, for the purpose of investigating the appropriateness of the procedures´ format, the length, and content.

Results of the pilot study indicated that the adult subjects agreed 100% in their responses to all inflexional items in both the receptive and expressive eliciting procedures. Similarly, the children´s accurate responses to the inflectional items were unanimous. For example, all children said the plural of gato(cat) was gatos(cats).

Reliability is the degree to which a test consistently measures the phenomenon of interest. There are a number of different types of reliability. Each is determined in a different manner and each deals with a different kind of consistency. Test-retest reliability was determined to be the most appropriate reliability measure for this study. Test-retest reliability is the degree to which scores are consistent over time. Determination of test-retest reliability is appropriate when it is unlikely that subjects taking the test the second time will remember responses made on the test the first time. If the resulting coefficient, referred to as the coefficient of stability, is high, the test has good test-retest reliability.

In order to measure the degree of agreement between children´s "test-retest" of the eliciting procedures, 20% of the children were re-evaluated after a week of initial testing with both the receptive and expressive procedures. A random procedure was utilized to select the children taking under consideration male to female and socioeconomic class ratios. Overall agreement was determined using the following formula:

$$\text{Percentage agreement} = \frac{\text{(agreements)}}{\text{(agreements + disagreements)}} \times 100.$$

The agreement between "test-retest" scores for the receptive procedure was 91 %. The agreement between "test-retest" for the expressive inflectional items was 96 %.

Table 1
List of the lexical items represented in the plates of the receptive procedure of Spanish morphology.

Grammatical Category	Lexical item
Inflected Morphemes	
plural /s/	sapos
	manos
/es/	ratones
	árboles
present progressive /ando/	caminando
	hablando
/iendo/	leyendo
	cogiendo
agentive /ero/	basurero
	cartero
/dor/	jugador
	limpiador
gender /a/	sucia
	cansada
/o/	bonito
	alto
preterite*	el niño durmió
	el niño escribió
present indicative*	el pájaro vuela
	el caballo come
Uninflected Morphemes	
possessive /de/	de los niños
	de la niña
comparison /más/	más gordo
	más viejo
Other	
periphrastic future*	ir a jugar
	ir a comer

*third person singular

Table 2

List of the lexical items represented in the plates of the expressive procedure of Spanish morphology.

Grammatical Category	Lexical item
Inflected Morphemes	
plural /s/	gatos
	sillas
/es/	leones
	trenes
present progressive /ando/	saltando
	llorando
/iendo/	corriendo
	comiendo
agentive /ero/	lechero
	panadero
/dor/	peleador
	vendedor
gender /a/	sucia
	fea
/o/	rojo
	gordo
preterite*	ladró
	durmió
present indicative*	corre
	duerme
Uninflected Morphemes	
possessive /de/	de la niña
	del señor
comparison /más/	más grande
	más pequeno
Other	
periphrastic future*	ir a comer
	ir a jugar

*third person singular

CHAPTER III
RESULTS

The purpose of the present study was to obtain cross-sectional data on the development and acquisition of thirteen morphological structures in monolingual, monocultural Spanish-speaking children.

The data analyses for this study were conducted through the Center for Instructional and Research Computing Activities using SAS (Statistical Analysis System) with the MRANK procedure for the analyses of variance (with an analysis of covariance included). All determinations of significance were conducted at the .05 level.

Comparative Results

Receptive Morphological Development

Among the comparative questions this study sought to answer were the following: a) Do Spanish-speaking males differ from Spanish-speaking females in the comprehension and production of Spanish morphemes, and b) Do children from the low, middle, and high socioeconomic classes differ in their comprehension and production of Spanish morphemes?

No significant differences between the sexes ($X^2=9.69$; df=13; p= .718) were found when comparing the comprehension of Spanish morphemes by males and females (see table 3). Similarly, no significant differences in the comprehension of Spanish morphemes (X^2=34.73; df=26; p=.117) were found among the three socioeconomic groups (see table 4). Further, no significant interaction effect between sex and socioeconomic class was found (X^2=64.65; df=65; p=.488) (see table 5).

In summary, the independent variables of sex and socioeconomic class did not affect the comprehension of Spanish morphemes in the current investigation.

Expressive Morphological Development

No significant differences between sexes (X^2=14.23; df=13; p=.357) in the production of inflectional morphemes were found (see table 6). That is, girls and boys performed similarly in their production of thirteen Spanish morphemes. However, there was a significant dependency between the levels of socioeconomic class and the production of morphemes (X^2=50.63; df=26; p=.00026). The univariate analyses indicate significant differences for the morphemes /-es/,/-iendo/,/-a/, and the future inflection (see table 7).

Based on the significant results of the univariate analyses, means comparisons between the socioeconomic classes and the four morphemes were conducted. Table 8 shows that for the morpheme /-es/, there are significant differences between the low and middle classes, as well as, between the high and low socioeconomic classes. For the

Table 3
Results of the Analyses of Variance for the Receptive Morphological Performance between Males and Females.

Morphemes	X^2	P-value	d.f.
/s/	0.2010	0.6539	1
/es/	0.0440	0.8338	1
/ando/	0.0727	0.7874	1
/iendo/	1.2866	0.2567	1
/ero/	2.5887	0.1076	1
/dor/	0.0424	0.8369	1
/a/	2.3741	0.1234	1
/o/	0.0407	0.8400	1
/de/	0.0097	0.9215	1
/más/	1.0268	0.3109	1
preterite	2.2509	0.1335	1
future	3.1461	0.0761	1
present indicative	1.1920	0.2749	1
All variables	9.6972	0.7185	13

Significant at the preestablished criterion level of $p<.05$.

Table 4

Results of the Analyses of Variance for the Receptive Morphological performance between levels of socioeconomic class.

Morphemes	X^2	P-value	d.f.
/s/	2.7962	0.2471	2
/es/	1.3150	0.5181	2
/ando/	10.857	0.0044*	2
/iendo/	5.0561	0.0798	2
/ero/	6.6353	0.0362*	2
/dor/	8.5980	0.0136*	2
/a/	0.3559	0.8370	2
/o/	1.0870	0.5807	2
/de/	3.2472	0.1972	2
/más/	7.2368	0.0268*	2
preterite	1.1145	0.5728	2
future	1.7162	0.4240	2
present indicative	3.6444	0.1617	2
All variables	34.736	0.1175	26

*Significant at the preestablished criterion level of $p<.05$.

Table 5
Results of the Analyses of Variance for the Receptive performance on sex, socioeconomic class interaction.

Morpheme	x^2	P-value	d.f.
/s/	3.0977	0.6849	5
/es/	3.2224	0.6657	5
/ando/	12.298	0.0309*	5
/iendo/	6.4537	0.2645	5
/ero/	9.1759	0,1023	5
/dor/	10.239	0.0687	5
/a/	2.6979	0.7464	5
/o/	1.1880	0.9460	5
/de/	5.1752	0.3949	5
/más/	14.776	0.0144*	5
preterite	3.9613	0.5550	5
future	5.6588	0.3408	5
present indicative	7.2084	0.2056	5
All variables	64.653	0.4888	65

*Significant at the preestablished criterion level of $p<.05$.

gerund allomorph /-iendo/, there are significant differences in the responses between middle and high and between high and low socioeconomic classes. For the feminine allomorph /-a/ there are only significant differences between two levels of socioeconomic class, high and low. Finally, for the inflection of the future tense, significant differences occurred between the middle and high, and between the high and low socioeconomic classes.

A significant interaction was found between the variables of sex and socioeconomic class (X^2=89.52; df=65; p=.023). The univariate analyses of the interaction model show a significant level for the morphemes /-es/, /-ero/, present indicative and the future inflection (see Table 9). Based on the significant results of the univariate analyses, Pairwise comparisons between the levels of sex and socioeconomic classes for the four morphemes were conducted. Results indicated that there is not a statistical significant pattern of interaction (see Appendix F).

In order to ascertain whether children differ in their acquisition of the thirteen morphemes on the receptive and expressive eliciting tasks, multivariate hypothesis tests were conducted. Table 10 shows that there are highly significant differences (p=.0001) between the receptive and expressive tasks for all grammatical morphemes except one, the periphrastic future form.

Table 6
Results of the Analyses of Variance for the Expressive Morphological development between Males and Females.

Morphemes	X^2	P-value	d.f.
/s/	0.2032	0.6521	1
/es/	0.2212	0.6381	1
/ando/	0.0122	0.9120	1
/iendo/	0.1805	0.6709	1
/ero/	7.5521	0.0060*	1
/dor/	1.2966	0.2548	1
/a/	0.2701	0.6032	1
/o/	0.0886	0.7659	1
/de/	0.2438	0.6215	1
/más/	0.0659	0.7973	1
preterite	0.1429	0.7054	1
future	0.5044	0.0320*	1
All variables	14.230	0.3578	13

*Significant at the preestablished criterion level of $p<.05$.

Table 7
Results of the Analyses of Variance for the Expressive Morphological performance between the levels of socioeconomic class.

Morphemes	X^2	P-value	d.f.
/s/	1.5637	0.4576	2
/es/	21.201	0.0001*	2
/ando/	3.8518	0.1457	2
/iendo/	8.6427	0.0133*	2
/ero/	2.8253	0.2453	2
/dor/	2.2691	0.3216	2
/a/	8.3611	0.0153*	2
/o/	1.1762	0.5554	2
/de/	5.9661	0.0506	2
/más/	0.9130	0.6335	2
preterite	0.3053	0.8584	2
future	111.36	0.0001*	2
present indicative	3.6600	0.1604	2
All variables	50.630	0.0026*	26

*Significant at the preestablished criterion level of $p<.05$.

Table 8
Pairwise comparisons between the levels of socioeconomic class and the four expressive morphemes found to be significant in the univariate analysis.

	/es/ p-value	/iendo/ p-value	/a/ p-value	future p-value
Low-Middle	.0043*	.4090	.1685	.0838
Middle-High	.2709	.0256*	.2177	.0069*
High-Low	.00135*	.0146*	.0401*	.000 031*

*Significant at the preestablished criterion of p<.05

Table 9
Results of the Analyses of Variance for the Expressive Performance on sex,socioeconomic class interaction.

Morphemes	X^2	P-value	d.f.
/s/	2.1947	0.8216	5
/es/	21.726	0.0006*	5
/ando/	5.8686	0.3192	5
/iendo/	9.0579	0.1068	5
/ero/	13.893	0.0163*	5
/dor/	3.9051	0.5632	5
/a/	9.6109	0.0870	5
/o/	1.9172	0.8605	5
/de/	7.0791	0.2148	5
/más/	1.8933	0.8637	5
preterite	7.3468	0.1961	5
future	114.49	0.0001*	5
present indicative	11.828	0.0372*	5
All variables	89.520	0.0236*	65

*Significant at the preestablished criterion level of $p<.05$

Table 10
Results of the Multivariate Analyses for the comparison between the Receptive and Expressive Eliciting Procedures

Morphemes	X^2	P-value	d.f.
/s/	47.0978	0.0001*	1
/es/	53.4892	0.0001*	1
/ando/	72.1863	0.0001*	1
/iendo/	77.3302	0.0001*	1
/ero/	66.0209	0.0001*	1
/dor/	76.2832	0.0001*	1
/a/	74.4416	0.0001*	1
/o/	84.8060	0.0001*	1
/de/	132.584	0.0001*	1
/más/	95.1339	0.0001*	1
preterite	54.4634	0.0001*	1
future	0.7421	0.3890	1
present indicative	98.9992	0.0001*	1

*Significant at the preestablished criterion level of $p<.05$.

In summary, no significant differences between males and females in their production of thirteen morphemes were found. Secondly, significant differences were found in the production of morphemes among levels of socioeconomic class. Finally, there were highly significant differences between the children´s comprehension and production of twelve of the thirteen morphemes.

Descriptive Results

The developmental data on sequences of morphological rule acquisition are presented in two formats. First, percentages of correct responses are presented independently for each morpheme tested at each age interval for both the receptive and expressive eliciting procedures. Second, all grammatical morphemes in both the receptive and expressive procedures are categorized as emerging, stable, or mastered at each age interval.

A morpheme was defined as emerging if the mean percentage of correct responses fell between 50-74%. A stable morpheme was defined as having a mean percentage of correct responses between 75-100%. Finally, a mastered morpheme was defined as having a mean percentage of correct responses above 90%.

Receptive Morphological Acquisition

Receptive morphological data are presented in two tables. Table 11 shows the mean percentages of correct responses for each morpheme at each age group interval. Table 12 shows the morphemes categorized as either emerging, stable or mastered at each age interval, according to the mean percentages of correct responses.

Plurals. The children´s mean percentages of correct responses for the allomorph /-s/ were below the 75% level through 3:6 years (range 25-67%) with the exception of the age interval 3:1 (75%). Higher mean percentages of correct responses occurred after 3:7 years (range 63-88%). For nouns ending in a consonant, which requires the plural allomorph /-es/, the mean percentages of correct responses were highly variable (range 13-67%). None of the children´s mean percentages were above 75% (see table 11).

The mean percentages of correct responses for the allomorph /-s/ fell at the emerging stage between 2:8 and 3:6 years. After 3:7 years the mean percentages fell within the stable stage for the majority of the children. At 4:1 years, the mean percentages of correct responses fell within the mastery level (90%). The mean scores for the plural allomorph /-es/ fell within the emerging stage for all children between 2:8 and 4:2 years (see table 12).

Present Progressive. The children´s mean percentages of correct responses for the allomorph /-ando/ ranged from 25 to 75%. Only at the 4:0 age interval did the mean percentage of correct responses reach 75%. For the allomorph /-iendo/, the mean percentages of correct responses varied from 0 to

75%. The highest mean percentage of correct responses occurred at 3:8 years (see table 11).

The mean percentages of correct responses for both allomorphs fell within the emerging stage of acquisition at most age intervals. However, the mean scores for the allomorph /-iendo/ appeared stable at an earlier age (3:8) than for the allomorph /-ando/ (4:0) (see table 12).

Derived Agentive. The mean percentages of correct responses for the agentive-occupation allomorph /-ero/, ranged from 17 to 70% before 3:6 years with the exception of the 3:3 age interval. After 3:7 years, the mean percentages of correct responses were above 75% for most age interval (range 50-90%). For the allomorph agentive-active /-dor/, the mean percentages of correct responses were below 75% for all age groups with the exception of the 3:10 (90%) and the 4:2 (88%) age intervals (see table 11).

The mean percentages of correct responses for both allomorphs fell within the emerging stage of acquisition up to 3:2 years. The mean percentages for the allomorph /-ero/ appeared to be more stable at the different age intervals than the allomorph /-dor/. At 3:10 years, the mean percentage of correct responses for the allomorph /-dor/ fell within the mastery stage of acquisition, whereas the percentage for the allomorph /-ero/ fell within the mastery stage at 4:1 years (see table 12).

Gender. The mean percentages of correct responses for the feminine allomorph /-a/ were below 75% for all age groups (range 0-60%) with the exception of the 2:10 (75%) and 3:8 (88%) age intervals. Similarly, the mean percentages of correct responses for the masculine allomorph /-o/ were below 75% for all age groups with the exception of the 2:8 (80%),3:1 (75%), and 3:5 (75%) age intervals (see table 11).

The mean percentages of correct responses for both allomorphs fell primarily within the emerging stage of acquisition. The mean scores for the masculine allomorph /-o/ fell within the stable stage at an earlier age (2:8) than the mean scores for the feminine allomorph /-a/ (2:10). The mean scores for the allomorph /-o/ were more stable across the age intervals than the mean scores for the allomorph /-a/ (see table 12).

Possessive. The mean percentages of correct responses for the possessive /de/ were low and ranged from 0 to 38% (see table 11).

None of the children´s mean percentages were at the emerging stage of morpheme acquisition (see table 12).

Comparison of Adjective. The morpheme /más/ showed marked variability in the mean percentages of correct responses occurring before the age of 3:9 years (range 13-88%). After 3:10 years, the mean percentages of correct responses were above 75% (range 75-86%) (see table 11).

For the majority of the age interval, as noted in table 13, the mean percentages of correct responses for the comprehension of the morpheme /más/ fell within the emerging stage. Before 3:9 years, the mean scores fell within the stable stage for the age intervals of 2:10, 3:3, 3:6, and 3:9. After 3:10 years, the mean scores for the morpheme /más/ fell within the stable stage of acquisition.

Preterite. As table 11 indicates, only three age intervals (2:7, 3:2, 3:3) presented mean percentages of correct responses above 75% (range 75-83%). The remaining age intervals showed a range of 20-70% correct responses.

Table 12 indicates that the mean percentages for the inflection of the preterite fell within the stable stage before 3:3 years for only three age intervals, 2:7, 3:2, and 3:3. After 3:4 years, however, all mean percentages decreased and fell within the emerging stage of acquisition.

Future. Only three age intervals (3:8, 3:9, 4:2), as noted in table 11, obtained mean percentages of correct responses above 75% (range 75-88%). The mean percentages of correct responses for the other age groups ranged from 13 to 70%.

The mean percentages for the periphrastic future, as seen in table 12, fell within the emerging stage before 3:7 years. The mean percentages fell within the stable stage at 3:8 years, but after this age level, the mean percentages fluctuated between the emerging and stable stages.

Present Indicative. As table 11 indicates, only four age intervals (2:9, 3:2, 3:9 and 3:10) showed mean percentages of correct responses between 75 and 88%. The remaining age intervals had mean percentages of correct responses that ranged from 17 to 70%.

Table 12 indicates that the mean percentages for the inflection of the present indicative fell at the emerging stage for most of the age levels. The mean percentages fell at the stable stage for only 2:9, 3:2, 3:9, and 3:10 years.

For each of the morphemes examined in the present study, there is variability in the rate of comprehension among the children studied. Also, there is variability in the rate of comprehension between age levels. Acquisition of these Spanish morphemes is a gradual process; the time from the first sign of acquisition to a stable or mastered level can span years.

If the order of morpheme acquisition is relatively invariant (R.Brown, 1973; deVilliers and deVilliers, 1973), then one should be able to predict which morphemes will be acquired using a specific criterion. Since Brown´s (1973) criterion for morpheme acquisition of 90% presence in obligatory contexts in three successive speech samples could not be utilized due to the nature of this study, two different procedures for ordering acquisition of the 13 morphemes were used. First, the percentages of correct responses for each morpheme were summed across all the age levels and averaged, and then these mean percentages were ranked. For the second method the same procedure was utilized, except that only children showing 100% mastery (see Appendix G) were included. These two procedures were applied to the data obtained from the receptive eliciting procedures. Table 13 shows the rank orderings of the 13 receptive morphemes by the above methods. The Spearman rho (rank) correlation coefficient among the two methods was +.814. The high correlation between the two ordering procedures suggests that given the percentage of correct responses or the percentage of children demonstrating 100% mastery, the morphemes show a fairly similar ordering.

Expressive Morphological Acquisition

Data regarding the productive knowledge of morpheme acquisition are reported in two tables. Table 14 shows the mean percentage of correct responses for each age interval and each morpheme. Table 15 describes how the morphemes can be categorized as either emerging, stable or mastered, according to the mean percentages of correct responses.

Plurals. The children in the various age groups had very little difficulty in the formation of the plural allomorph /-s/. The mean percentages of correct responses were above 75% (range 75-100%) for most age intervals with the exception of the 2:7 (67%) and 2:10 (50%) age intervals. For the allomorph /-es/, the mean percentages of correct responses for most age intervals were above 75% (range 75-100%). The age intervals that did not obtain a mean score above 75% were 2:7 (50%), 2:9 (60%), 2:10 (50%), 2:11 (63%), and 3:0 (70%) (see table 14).

Table 11
Percentage of Correct Responses on the Receptive Task
for Children at each Age Interval.

Age	Number Children	-s	-es	-ando	-iendo	-ero	-dor	-a	-o	de	más	preterite	future	present
2-7	3	33	17	33	17	17	33	33	33	33	50	83	17	17
2-8	5	50	60	50	60	70	50	40	80	20	30	40	60	40
2-9	5	50	30	60	20	50	30	20	70	20	50	30	30	80
2-10	2	25	50	50	50	50	50	75	25	25	75	25	25	25
2-11	4	63	38	25	25	38	63	50	38	13	63	50	25	50
3-0	10	65	25	35	15	35	20	30	55	20	50	25	25	45
3-1	2	75	50	25	50	50	50	25	75	25	25	50	50	50
3-2	2	50	50	25	0	50	25	0	50	25	50	75	25	75
3-3	6	67	67	50	25	75	58	50	33	17	75	75	50	42
3-4	6	58	50	58	50	42	33	33	42	8	25	58	50	42
3-5	4	63	13	63	38	38	50	50	75	25	13	50	13	63
3-6	5	60	40	40	20	70	40	50	40	30	80	20	30	70
3-7	5	80	60	60	40	80	60	60	20	20	60	30	40	50
3-8	4	88	63	50	75	63	38	88	38	38	88	50	88	50
3-9	5	70	40	50	40	80	60	60	70	30	70	70	80	80
3-10	7	79	36	57	50	79	90	29	43	36	86	50	64	88
4-0	4	63	38	75	50	88	63	50	50	25	75	50	50	50
4-1	5	90	50	40	30	90	70	20	30	0	80	50	70	30
4-2	4	63	50	63	63	50	88	50	63	13	75	50	75	50

Table 12

The Receptive Acquisition of Morphemes at Three Levels of Mastery for Each Age Interval.

Age	50-74% Emerging	75-100% Stable	90-100% Mastered
2-7		preterite.	
2-8	s,es,ando,iendo,ero dor,future.	o.	
2-9	s,ando,ero,o,más.	present.	
2-10	es,ando,iendo,ero,dor.	a,más.	
2-11	s,dor,a,más,preterite, present.		
3-0	s,o,más.		
3-1	es,iendo,ero,dor,future, preterite,present.	s,o.	
3-2	s,es,ero,o,más.	preterite,present.	
3-3	s,es,ando,dor,a,future.	ero,más,preterite.	
3-4	s,es,ando,iendo,preterite, future.		
3-5	s,ando,dor,a,preterite, present.	o.	
3-6	s,ero,a,present.	más.	
3-7	es,ando,dor,a,más,present.	s,ero.	
3-8	es,ando,ero,preterite, present.	s,iendo,a,más,future.	
3-9	s,ando,dor,a,o,más,preterite.	ero,future,present.	
3-10	ando,iendo,preterite,future.	s,ero,más,present.	dor.
4-0	s,iendo,dor,a,o,preterite future,present.	ando,ero,más.	
4-1	es,dor,preterite,future.	más.	s,ero.
4-2	s,es,ando,iendo,ero,a,o, preterite,present.	dor,más,future	

Table 13
The receptive order of acquisition for the 13 Spanish morphemes based on two ordering procedures.

The 13 morphemes	Rank ordering Method I *a	Rank ordering Method II *b
/más/	1	2
/s/	2	1
/ero/	3	3
/o/	4	7
future	5	9
/dor/	6	5
present indicative	7	4
/es/	8	10
/ando/	9	8
/a/	10	11
preterite	11	6
/iendo/	12	12
/de/	13	13

*a Method I is based on mean percentage of correct responses.

*b Method II is based on mean percentage of children demonstrating 100% mastery.

The mean percentages of correct responses for the allomorph /-s/ fell within the stable stage at 2:9 years; the mean percentages fell within the mastered stage at 2:11 years. The mean percentages for the allomorph /-es/ remained within the emerging stage for a longer period of time. The mean percentages for most children indicated that mastery of this allomorph occurred at approximately 3:2 years (see table 15).

Present Progressive. The mean percentages of correct responses for the allomorph /-ando/ varied between 50 and 90% before 2:10 years. After 2:11 years, the mean percentages of correct responses were above 88% (range 85-100%). The mean percentages of correct responses for the allomorph /-iendo/ ranged from 50 to 100% before 3:0 years. After 3:1 years, the mean percentage of correct responses were above 75% (range 75-100%) (see table 14).

For the allomorphs /-ando/ and /-iendo/ the mean percentages fell within the stage of mastery at the same age interval (2:8). However, between 2:9 and 3:5 years, the mean percentages for both allomorphs fluctuated between the emerging and stable stages. Only after 3:6 years did the mean percentages indicate mastery for both allomorphs (see table 15).

Derived Agent. The mean percentages of correct responses for both the agentive-occupation /-ero/ and the agentive-active /-dor/ were well below the 50% level for all age groups (except 4:0 years). The allomorph /-ero/ appeared in the children´s speech at an earlier age interval (3:5) than the allomorph /-dor/ (3:9) (see table 14).

The mean percentages for the allomorph /-ero/ fell within the emerging stage only for children at the age interval of 4:0 years (see table 15).

Gender. The mean percentages of correct responses for the feminine allomorph /-a/ varied from 50 to 83% before the age interval of 3:0 years. After 3:1 years, the mean percentages of correct responses ranged from 75 to 100%. The mean percentages of correct responses for the masculine allomorph /-o/ were above 83% (range 83-100%) for all age intervals (see table 14).

The mean percentages for the allomorph /-a/ fell within the emerging stage for most age groups between 2:7 and 3:0 years. The mean percentages for this allomorph fell within the mastery stage at the age of 3:2 years. The mean percentages for the allomorph /-o/ indicated mastery after 2:8 years (except 2:11 years) (see table 15).

Possessive. The mean percentage of correct responses for the possessive /de/ were well above 75% (range 80-100%) for all age groups with the exception of the 2:10 interval (50%) (see table 14).

The mean percentages for the morpheme /de/ fluctuated between the emerging and mastery stage prior to 2:10 years. After 2:11 years, the mean percentages fell within the mastery stage of acquisition (see table 15).

Comparison of Adjective. The mean percentages of correct responses for the morpheme /más/ were well below the 50% level (range 0-20%) for all children (see table 14).

None of the children demonstrated an emerging stage of acquisition for the morpheme /más/ (see table 15).

Preterite. The mean percentages of correct responses for the inflection of the preterite fell below the 50% level (range 0-33%) for all age groups with the exception of the 3:6 years interval (50%) (see table 14).

Only at one age interval (3:6) did the mean percentage fall within the emerging stage for the inflection of the preterite (see table 15).

Future. The mean percentages of correct responses for the periphrastic future ranged from 0 to 100%. Higher mean scores were exhibited by the older subjects (see table 14).

After 3:1 years, the children´s mean percentages fluctuated between the emerging and stable stages of acquisition (see table 15).

Present Indicative. The mean percentages of correct responses for the inflection of the present indicative were well below 50% level (range 0-13) for all age groups (see table 14).

None of the children at any age interval showed emerging knowledge of the rule to inflect the present indicative (see table 15).

For each of the grammatical categories examined in the present study, the data suggest that there is variability in the process of rule internalization among the allomorphs studied. The children in this study did not achieve percentages indicative of an emerging level of acquisition for the preterite, present indicative, agentive and comparative inflections. For the plural, present progressive, gender and possessive morphemes the results indicated an earlier internalization of the grammatical rules. The productive use of the periphrastic future increased with age.

Two different procedures for the order of acquisition of the 13 morphemes were used. First, the percentages of correct responses for each morpheme were summed across all the age levels and averaged, and then these mean percentages were ranked. For the second method the same procedure was followed, except that only children showing 100% mastery were included. These two procedures were applied to the data obtained from the expressive eliciting procedures. Table 16 shows the rank orderings of the 13 morphemes in the expressive language, by the above methods. The Spearman rho (rank) correlation coefficient among the two methods was +.910. The high correlation between the two ordering procedures suggests that both percentage of correct responses and percentage of children demonstrating 100% mastery predict the order of acquisition of Spanish morphemes.

Table 14
Percentage of Correct Responses on the Expressive task for Children at each Age Interval.

Age	Number Children	-s	-es	-ando	-iendo	-ero	-dor	-a	-o	de	más	preterite	future	present
2-7	3	67	50	67	83	0	0	83	83	83	0	0	17	0
2-8	5	80	80	90	100	0	0	80	100	100	0	10	40	0
2-9	5	100	60	60	40	0	0	60	90	80	0	0	20	0
2-10	2	50	50	50	50	0	0	50	100	50	0	0	0	0
2-11	4	100	63	100	88	0	0	63	88	100	0	13	25	13
3-0	10	100	70	85	70	0	0	70	95	90	5	0	30	5
3-1	2	100	75	100	75	0	0	75	100	100	0	0	50	0
3-2	2	100	100	100	100	0	0	100	100	100	0	25	25	0
3-3	6	100	100	100	100	0	0	100	100	100	8	33	75	0
3-4	6	100	92	100	83	0	0	100	92	100	0	17	58	0
3-5	4	75	75	88	100	25	0	100	100	88	0	0	25	13
3-6	5	100	90	100	100	10	0	100	100	100	0	50	50	0
3-7	5	100	100	90	100	30	0	100	100	100	20	10	60	10
3-8	4	100	100	100	100	25	0	100	100	100	13	13	88	0
3-9	5	80	90	90	90	30	30	100	100	100	10	20	60	0
3-10	7	100	100	100	100	14	7	100	100	100	0	21	100	0
4-0	4	100	75	100	100	63	0	100	100	100	0	0	75	0
4-1	5	100	90	100	90	20	25	100	100	100	0	20	80	0
4-2	4	100	100	100	100	13	13	100	100	100	0	25	63	0

Table 15

The Expressive Acquisition of Morphemes at Three Levels of Mastery for Each Age Interval.

Age	50-74% Emerging	75-100% Stable	90-100% Mastered
2-7	s,es,ando.	iendo,a,o,de.	
2-8		s,es,a.	ando,iendo,o,de.
2-9	es,ando,a.	de.	s,o.
2-10	s,es,ando,iendo a,de.		o.
2-11	es,a.	iendo,o.	s,ando,de.
3-0	es,iendo,a.	ando.	s,o,de.
3-1	future.	es,iendo,a.	s,ando,o,de.
3-2			s,es,ando,iendo,a, o,de.
3-3		future	s,es,ando,iendo,a,o,de
3-4	future.	iendo.	s,es,ando,a,o,de.
3-5		s,es,ando,de.	iendo,a,o.
3-6	preterite,future.		s,es,ando,iendo,a,o,de.
3-7	future.		s,es,ando,iendo,a,o,de.
3-8		future.	s,es,ando,iendo,a,o,de.
3-9	future.	s.	es,ando,iendo,a,o,de.
3-10			s,es,ando,iendo,a,o, de,future.
4-0	ero.	es,future.	s,ando,iendo,a,o,de.
4-1		future.	s,es,ando,iendo,a,o,de.
4-2	future.		s,es,ando,iendo,a,o,de.

Table 16
The expressive order of acquisition of the 13 morphemes in terms of the two ordering procedures.

The 13 morphemes	Rank ordering Method I *a	Rank ordering Method II *b
/s/	1	3
/de/	2	2
/ando/	3	4
/a/	4	5
/iendo/	5	6
/o/	6	1
/es/	7	7
future	8	8
/ero/	9	10
preterite	10	9
/más/	11.5	12
/dor/	11.5	11
present indicative	13	13

*a Method I is based on mean percentage of correct responses.

*b Method II is based on mean percenage of children demonstrating 100% mastery.

CHAPTER IV
DISCUSSION

The purpose of the present investigation was to obtain cross-sectional data on the acquisition of Spanish morphemes by monolingual, monocultural Spanish-speaking children through receptive and expressive eliciting procedures. The children selected ranged in age from 30 to 50 months. Three levels of socioeconomic class (high, middle, low) were represented in the sample. In this chapter the main findings of this study are discussed, interpreted, and related to previous research.

Discussion of the Method of Investigation

The eliciting procedures employed in the present investigation were not standardized on Spanish-speaking subjects. These procedures were developed and then validated on 6 adults and 3 children born in Colombia. In order to minimize the role of chance factors in the receptive eliciting procedure, a target picture and three foils were used. The picture foils were possible alternatives, thus the children´s responses were not based on discrimination of words (e.g., boy vs. girl) alone but rather on receptive kmowledge. The expressive eliciting procedure relied, for the most part, on a modification of the methodology used by Berko (1958).

The grammatical categories selected in this study consisted of inflectional and uninflectional morphemes with the exception of the periphrastic future. The inflected future requires the addition of a vowel to the infinitive verb form. The periphrastic future, on the other hand, uses the form "ir+a+the infinitive." The decision to use the periphrastic future instead of the inflected future was based on data from adult speech. vanNaersen (1983) stated that the periphrastic future is the most common form used to express simple future action which reflects a psychological and social reality.

The number of children tested at each age level was not constant. There were between 2 to 10 children at each age interval. Therefore, caution should be taken in interpreting the present data as representative of all Spanish-speaking children, especially for those age levels containing only two subjects.

The findings from the present study are compared primarily with those from the study conducted by Kernan and Blount (1966). Kernan and Blount studied only the productive knowledge of Spansih grammatical rules in Spanish-speaking monolingual children, based on the methodology devised by Berko (1958). Their subjects were 47 boys and 45 girls, ranging in age from 5 to 12 years. The subjects in this study were similar in their language background to the subjects in Kernan and Blount´s study. However, in the present study the age range of the subjects was much lower (30-50 months). The subjects in this study represented three levels of scioeconomic class, whereas in Kernan and Blount´s study, only children from a lower socioeconomic class were selected. The testing procedure of the present study required the children to apply grammatical rules to real words in order to derive the correct form of that word in a given linguistic context. In Kernan and Blount´s study, the children were required to apply the grammatical rule to nonsense words. In contrast to Kernan and Blount´s study, the number of test items for each of the morphemes studied was the same. The following sections will present a discussion of receptive and expressive morpheme acquisition.

Receptive Morphological Development

Since there have been no prior empirical investigations of the comprehension of Spanish morphemes by monolingual, monocultural Spanish-speaking children, the present results can not be discussed in comparison with other studies. However, the present study provides data on the age and order of acquisition for each Spanish morpheme investigated.

Studies on child´s language development have shown that the period between two and four years of age is important for language acquisition because it is in this period that the major features of syntax are mastered. It is during this period that females are thought to be superior to males in language development (McCarthy, 1954).

Results of the present study corroborate previous findings of no differences in language comprehension between males and females. Maccoby and Jacklin (1974), in their review of studies on sex differences in English sentence comprehension and vocabulary, found no differences between boys and girls.

Another factor that may influence the acquisition of morphemes is socioeconomic class. The failure of many poor children to succeed in school has been explained in terms of impaired language development, which, in turn, affects academic peformance.

The results of this study indicate that the children´s ability to comprehend the different roles of morpheme formation do not depend on their socioeconomic background. Research in other languages has corroborated this finding. Parisi (1971) studied 3 to 6 year old Italian children´s ability to comprehend various syntactical constructions. Social class differences were not found with younger ages (3-5 years) but differences were found at older ages (6 years). Shriner and Miner (1968) investigated the mastery of morphological rules by middle and lower class English-speaking children. Results of the receptive test indicated no differences between the groups. Similarly, Bruck and Tucker

(1974) ivestigated social class differences in the acquisition of school language by middle and lower class kindergarten children. The results of this investigation suggested that lower class children have the same ability as middle class children to comprehend grammatical structures.

In addition to the statistical findings, the descriptive analyses provide valuable information on the receptive acquisition of each of the following grammatical morphemes.

Plural. Comprehnsion of the allomorph /-s/ (e.g., sapos "frogs") occurred at an earlier age than the allomorph /-es/ (e.g., árboles "trees"). The allomorph /-s/ seemed to be at the emerging stage between 2:7 and 3:9 years and at the stable stage between 3:10 and 4:0 years. It was mastered at 4:1 years by the majority of children (80%). The allomorph /-es/ did not appear stable at any of the different age levels nor was there much improvement with an increase in age. A possible explanation for this pattern of morpheme development is the greater frequency of nouns in Spanish which end in a vowel and hence the greater exposure of children to this plural formation.

Present Progressive. The comprehension of the present progressive allomorphs followed a similar pattern of development. Both allomorphs were at the emerging stage for several months. Each morpheme appeared stable only at one age level. The allomorph /-ando/ (e.g., caminando "walking") was stable at 4:0 years and the allomorph /-iendo/ (e.g., leyendo "reading") was stable at 3:8 years. The percentage of children comprehending the allomorph /-ando/ was greater than for the allomorph /-iendo/. From the results obtained it appears that both allomorphs are mastered by the children after 4:2 years.

Derived Agent. The masculine agentive-occupation /-ero/ (e.g., cartero "mailman") showed a more consistent pattern of development than the agentive-active /-dor/ (e.g., jugador "player"). The allomorph /-ero/ appeared to be emerging between 2:8 and 3:6 years, stable between 3:7 and 4:0 years and mastered at 4:1 years by the majority of children (80%). The allomorph /-dor/, although mastered at an earlie age (3:10), appeared to be at the emerging stage for most of the age levels. The percentage of children comprehending the allomorph /-ero/ was greater than for the allomorph /-dor/, especially for the older subjects.

Gender. Variability in the percentage of correct responses and in the percentage of children demonstrating internalization of the rules for the allomorphs occurred throughout the age levels. The feminine allomorph /-a/ (e.g., sucia "dirty") and the masculine allomorph /-o/ (e.g., alto "tall") were, for most age levels, at the emerging stage of acquisition. However, the allomorph /-o/ appeared to be at the stable stage at an earlier age than the feminine allomorph.

Such high variability in the percentage of correct responses among the children could be explained by the absence of linguistic and/or semantic input preceding the adjectives tested in this study (e.g., article + noun). It is possible that children comprehend gender distinctions based on the linguistic information provided by the marked articles (e.g., el, la "the") and/or the inherent grammatical gender of nouns (e.g., perro "dog"; niña "girl") preceding a given adjective (e.g., grande "big"; sucia "dirty").

Possessive. None of the children studied demonstrated an emerging comprehension of the morpheme /de/ (e.g., de la niña "of the girl"). Only after 3:6 years did a small percentage of children (14-20%) seem to comprehend this morpheme.

A posible explanation for the apparent lack of comprehension of the possessive form could be that the child acknowledges some sort of relationship through a different grammatical system. The child may understand relationships or closeness between particular people and objects through a semantic association of nouns-objects (e.g., mommy dress). It is also possible that, because of the linguistic structure used in this study (possessive + article + noun), children did not comprehend the semantic and/or lexical properties of the key word (de "of") in the phrase.

Comparative. The comprehension of the comparative morpheme /más/ (e.g., más gordo "more fat") seemed to be at the emerging stage between 2:9 and 3:7 years for most age levels. The morpheme /más/ appeared to be stable after 3:8 years. A significant percentage of children (40-75%) throughout the age levels comprehended the comparative morpheme, especially after 3:6 years. However, it appears that children master this morpheme after 4:2 years.

Preterite. From the data obtained, it appears that the comprehension of the preterite, third person singular, (e.g., escribió "wrote") does not follow a typical developmental process. Before 3:3 years, the inflection for the preterite tense appeared stable at 2:7, 3:2, and 3:3 years. After 3:3 years, a high percentage of children demonstrated an emerging stage of morpheme acquisition. It is apparent that this inflected morpheme becomes stable after 4:2 years and is probably mastered much later.

Future. The comprehension of the periphrastic future (e.g., ir a comer "goes to eat") emerged between 2:8 and 3:7 years. It was stable at 3:8 years. An increase in the percentage of children comprehending the periphrastic future occurred after 3:6 years (20-75%). It is probably after 4:2 years that the periphrastic future is mastered by most children.

As discussed previously, the periphrastic future is not a morpheme. However, since this is the most common form that the children are exposed to, one could argue that there form "ir a" might represent to the child an immediate future much like the present progressive. Future research should determine if the "official" inflected future has, for the child, the same psychological reality as the periphrastic future.

Present Indicative. Receptive knowledge of the rules for the inflection of the present indicative, third person singular, (e.g., el pájaro vuela "the bird flies") was at the emerging stage for most age levels. It appeared that after 3:9 years, the inflected morpheme became stable for some age levels. However, due to the high percentage of children demonstrating an emerging acquisition, it seems that a stable comprehension for most children occurs after 4:2 years.

Summary. It is evident from the data presented here that the acquisition of Spanish morphemes is a gradual process. Differences between children of varying chronological ages are apparent. However, in spite of the differences in the rate of morpheme acquisition, the data obtained in this study indicates that the morphemes más, -s, -ero, -o, periphrastic future, and -dor are the first morphemes to be comprehended by language learning children. The last morphemes to be acquired appear to be the present indicative, -es, -ando, -a, preterite, -iendo, and the possessive.

Future research on the acquisition of Spanish morphemes should consider possible determinants of the order of acquisition. These factors might include the frequency of these morphemes in the speech of parents to their children and the grammatical and semantic complexity of the morphemes.

Expressive Morphological Development

The second purpose of this study was to investigate the productive knowledge of Spanish grammatical rules by Colombian children from three socioeconomic classes. In general, it was found that there were no significant differences between boys and girls in the production of these rules. The present findings regarding the role of sex are comparable to those of other studies with Spanish and English speaking children (Kernan and Blount, 1966; Berko, 1958).

Socioeconomic class differences in the production of the Spanish morphemes were found. Specifically, class differences were found between the low and middle, and between the low and high socioeconomic groups. There were also social class differences in the production of certain morphemes between the middle and high social class. Although data on the influence of social class differences in Spanish language development are not available, data from other languages support the present findings. Krauss and Rotter (1968) found that the middle class English-speaking children were superior to lower class children in identifying nonsense pictures. Baldwin, McFarlane, and Garvey (1971) extended the study of Krauss and Rotter by using meaningful pictures rather than nonsense pictures, and by testing fifth graders. Again, middle class children were more successful than lower class children. On the other hand, no evidence of social class differences in the acquisition of English morphemes have been reported. Shriner and Miner (1968) investigated the mastery of morphological rules by middle and lower class English-speaking children. The expressive test was based on Berko´s technique (1958). These authors found no differences between groups on the expressive test.

Attempts to draw conclusions regarding the influence of social class differences in the acquisition of morphemes must be made with caution. What constitutes the lower socioeconomic class in one culture could be categorized as middle class in another culture. Internalization of the rules for the formation of the grammatical morphemes could, for the Colombian culture, be influenced by the level of socioeconomic class.

In addition to the statistical results discussed, the descriptive analyses provide useful information on the expressive acquisition of each of the following grammatical morphemes.

Plural. Taken as a whole, children at the different age levels had very little difficulty in the formation of the plural allomorph /-s/ (e.g., gatos "cats"). The allomorph /-s/ appeared stable at 2:7 and acquired at 2:11 years. However, for the plural allomorph /-es/ (e.g., trenes "trains"), the children showed a longer emerging period (2:7 to 3:0 years). The allomorph /-es/ was mastered at 3:2 years by all children. This pattern of allomorph development corresponds closely with the findings of Kernan and Blount

(1966). It should be noted, however, that in Kernan and Blount´s study, their younger group (5-7 years) produced the allomorph /-es/ 44.7% of the time. Productive knowledge of the allomorph /-es/ did not improve with increase in age up to age 12 years.

The discrepancy between Kernan and Blount´s study and this investigation on the age of acquisition of the allomorph /-es/ could be explained by the stem ending to which an allomorph is added. The nonsense word (fetor) selected by Kernan and Blount ended in the consonant {r}, whereas in this study the lexical words selected ended in the consonant {n}. Thus, it appears that the children in Kernan and Blount´s study had difficulty in adding the morpheme /-es/ to the nonsense word "fetor" due to the phonetic characteristic of the stem ending. English-speaking children have been reported to have difficulty inflecting stems ending in certain consonants correctly because their rule for inflections is sensitive to the phonetic characteristics of both the allomorph and the stem ending (Solomon, 1972).

Present Progressive. The appropriate use of the allomorphs /-ando/ (e.g., saltando "jumping") and /-iendo/ (e.g., comiendo "eating") depends on the type of verb ending. For verbs ending in /ar/ (e.g., saltar "jump") children showed variability between the emerging and stable stages of acquisition before 3:0 years. After 3:1 years, most children (75-100%) had mastered the allomorph /-ando/. A high percentage of children exhibited 100% mastery of morpheme production after 2:11 years. Similarly, for verbs ending in /ir/ (e.g., salir "leave") and /er/ (e.g., comer "eat") children, after 3:1 years, demonstrate a high percentage (67-100%) of mastery level for the allomorph /-iendo/. This allomorph was mastered by most children after the age level of 3:2.

Agentive. None of the children studied demonstrated an emerging stage of acquisition for the allomorphs /-ero/ (e.g., lechero "milkman") and /-dor/ (e.g., peleador "fighter"). However, it appears that the allomorph /-ero/ is present in the children´s speech before the allomorph /-dor/. Kernan and Blount (1966) found that their 5-7 age group produced the agentive active /-dor/ at an emerging level of acquisition. For the agentive-occupation /-ero/, children of the same age group were producing the allomorph below the emerging stage. Thus, it appears that the internalization of the rules for these two allomorphs occur late in the course of language development.

Gender. From the results obtained it appears that the children had less difficulty forming the masculine gender /-o/ (e.g., gordo "fat") than the feminine /-a/ (e.g., fea "ugly"). After 2:8 years, most children (75-100%) at the different age levels demonstrated a mastery of the rule to inflect the masculine form. The feminine allomorph /-a/ was at the emerging stage between 2:9 and 3:0 years. It was mastered by all children after 3:2 years.

Possessive. The formation of the possessive for both singular and plural nouns was tested, and the children did consistently well with both forms. The possessive /de/ (e.g., de la niña "of the girl") was produced by a high percentage of children throughout the different age levels, except at 2:10 years, where the percentage of correct responses was much lower. The children´s production of the morpheme fluctuated between the emerging and mastered stages before 2:10 years. After 2:11 years, the children showed a complete mastery of the rules for the formation of this grammatical category.

Kernan and Blount (1966) reported that the children´s percentage of correct responses was high for each age group (above 95%). They stated that the internalization of the rules for forming possessives occurred at an early age.

Comparative. A very low percentage of correct responses was produced by the children for this morpheme. The percentages obtained were below the emerging stage. This indicates that the children have not become aware of the linguistic fuction of /más/ (e.g., más grande "more big") as a form to express the degree of comparison for an adjective or adverb.

The word /mas/ "more" often appears among the first words in a child´s vocabulary, but it is used as a type of all-purpose demand, a mean of obtaining a recurrence of what had gone before (e.g., more milk). Later, the child may use it to comment on the recurrence of an object or event. It is only after 4:2 years that the child uses the word in its full comparative sense.

Preterite. The percentage of correct responses for the inflected tense (e.g., habló "talked") was below the emerging stage at all age levels. However, for the age interval of 3:6 there was a trend toward an increase in the percentage of children (0-50%) demonstrating an emerging production. According to Kernan and Blount (1966), the percentage of correct responses for children between 11 and 12 years was 66.7%. This suggests that the mastery of the inflected preterite occurs after the age of 12 years. Because the children studied by Kernan and Blount were drawn from a lower social class and in view of the findings of this study, an earlier mastery of the inflected preterite may occur.

Future. Productive knowledge of the formation of the periphrastic future (e.g., ir a comer "go to eat") was at the emerging stage for most age levels. After 3:8 years, children´s internalization of the periphrastic future was stable for most age intervals. At only one age level (3:10), did children show mastery of the periphrastic future form.

Regarding the productive knowledge of the inflected future (addition of a vowel to the infinitive form) Kernan and Blount (1966) found that only 78.9% of the children in the 11-12 age group inflected the future tense. When the data from this study and that of Kernan and Blount´s are analyzed, it can be seen that the periphrastic future is internalized at an earlier age than the inflected future tense. These results corroborate, in part, the previous assumption (vanNaersen, 1983) that the periphrastic future is the most common form that children in Spanish speaking environments are exposed to during their language development.

Present Indicative. Of the children studied, none exhibited a productive knowledge of the rule for the inflection of the present indicative, third person singular (e.g., duerme "sleeps"). Only a small percentage of children at some age levels demonstrated an emerging stage. The mistake most commonly made was the use of the present progressive (estar + -ndo) instead of the present indicative. This suggests that children, before 4:2 years, perceive an actual or habitual event as a transitory one.

Summary. The results obtained from the expressive eliciting procedure indicate that slightly more than half of the morphemes examined were mastered by the children early in language acquisition. Of the verb tenses examined, the present progressive was the most advanced. This suggests that between 20 and 50 months, children´s speech is mostly in the present tense.

Using the Method I procedure (based on the percentages of correct responses) the order of acquisition of the earliest morphemes was as follows: -s, possessive, -ando, -a, -iendo, -o, and -es. The latest morphemes acquired by the children were the periphrastic future, -ero, preterite, comparative, -dor, and present indicative.

Comparison of Morpheme Development in Spanish and English. As noted previously, the grammatical categories of Spanish and English do not always allow for one-to-one across language equivalents. However, children do show similarities in the order of morpheme acquisition when the results from the expressive eliciting procedure are compared to the studies conducted by Berko (1958), R. Brown (1973) and Carrow (1973). Berko (1958) found that English-speaking children had more difficulty in producing the plural form which required the allomorph {ez} than with plural which required the {s} or {z} allomorphs. This fact corresponds closely with the findings that Spanish-speaking children internalized the allomorph {s} before they internalized the allomorph {es}. The order of morpheme acquisition presented by Brown (1973) and Carrow (1973) resembles the acquisition order for the subjects in this study. Among the first morphemes to be acquired by English-speaking children were -ing, plural, in, on, and the possessive. Similarly, the Spanish-speaking children acquired the present progressive, plural, possessive, and gender first. The last morphemes to be acquired by both English and Spanish-speaking children were the past tense, agentive, and comparative.

Receptive vs. Expressive Morphological Development

The traditional view regarding the relationship between comprehension and production, in the course of normal language development, has held that reception precedes production (Fraser, Bellugi, and Brown, 1963). Specifically, it has been argued that the child comprehends each of the specific forms and structures of his language system prior to the time he produces these in his own utterances. Recently, this assumption has been questioned both in syntactic and semantic areas. In terms of syntactic development, there is evidence from several English studies (Keeney and Wolfe, 1972; deVilliers and deVilliers, 1973; Chapman and Miller, 1975) that indicates children produce sentences according to certain grammatical rules which, at that time, they do not comprehend. For example, Keeney and Wolfe (1972) pointed out that English-speaking children often learn to make subject and verb agreement for number in the sentences they produce before they comprehend what is actually designated by such agreement. Similarly, Nelson and Bonvillian (1978), in their study between comprehension and production of newly learned material, found that some subjects exhibited accurate comprehension before correct production. But other children also demonstrated a tendency for correct production before accurate comprehension. For some concepts, the children appeared to be comprehending and producing nearly simultaneously in the same experimental session.

Results of the studies mentioned previously may lead us to assume that the comprehension of some specific grammatical form or construction occurs before it is produced. The reverse could be true in many cases. Results of the statistical analysis of the comparison between comprehension and production of Spanish morphemes tend to support this notion. Tables 11 to 16 indicate that comprehension preceded production for the following grammatical categories: agentive, comparative, preterite, and present indicative. Conversely, a high percentage of children exhibited accurate production before they mastered comprehension for the following grammatical categories: plural, present progressive, gender, and possessive. Production and comprehension abilities were approximately equal for the periphrastic future.

The findings of this study indicates that reception may exceed production during the early stages of acquisition for some Spanish grammatical forms. Even though comprehension seems to be the first step in the language acquisition process, the actual temporal or sequential relationship of specific receptive and expressive language forms appears to be a function of many variables and this relationship might vary over the course of language acquisition.

Summary and Conclusions

This investigation documented the early grammatical development of 90 children between 30 and 50 months of age in the acquisition of Spanish. Males and females were drawn from three day care centers, representing three socioeconomic classes. Receptive development and the expressive morphological development of nine grammatical categories were investigated. Receptive and expressive morphology eliciting procedures were administered to each child. The expressive eliciting procedure was a modification of the methodology used by Berko (1958). The findings of this study can be summarized as follows:

1. Spanish-speaking males did not differ from Spanish-speaking females in the comprehension and production of Spanish morphemes.

2. No significant differences were found between the levels of socioeconomic class and the comprehension of the morphemes studied. However, there were significant differences between children´s levels of socioeconomic class and their production of Spanish morphemes.

3. The receptive vs. the expressive morphological development of the children in this study indicates that receptive knowledge exceeds productive knowledge for some grammatical forms. For other grammatical morphemes a high percentage of children demonstrated accurate production of several grammatical morphemes before they mastered comprehension.

4. The order of acquisition of the earliest receptive morphemes was as follows: más, -s, -ero, -o, periphrastic future, and -dor. The last morphemes to be acquired appear to be the present indicative, -es, -ando, -a, preterite, -iendo, and the possessive form.

5. The order of acquisition of the earliest expressive morphemes was as follows: -s, possessive, -ando, -a, -iendo, -o, and -es. The latest morphemes acquired by the children were the periphrastic future, -ero, preterite, comparative, -dor, and present indicative.

In conclusion, a developmental hierarchy of morpheme acquisition does exist for Spanish-speaking children. The same pattern of development is not observed for morpheme acquisition in the receptive and expressive modalities. The first morphemes acquired receptively are not the earliest used expressively.

Clinical Implications

The results of this study may be considered with respect to assessment and remediation procedures in clinical situations. The finding that children from a lower socioeconomic class performed more poorly than the children from the middle and high classes on four receptive morphemes suggests a slower rate of morpheme acquisition. The results of testing with the eliciting procedures can enable speech-language pathologists to make statements regarding a child's level of language development and to plan remediation strategies. Language intervention specifically designed to enhance morphological development can then begin.

Speech-language pathologists working with children should remember that the morphemes comprehended by a child are not necessarily the same morphemes the child produces. Also, the order of morpheme acquisition within a grammatical category (e.g., -s and -es) occurs at different periods of language development.

Implications for Future Research

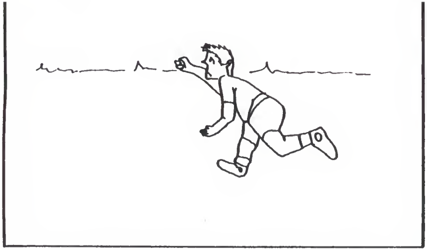
This research is only a first step toward understanding the acquisition of the Spanish language by children raised in a monolingual, monocultural environment. Several areas of future research could provide valuable information which would enhance the information generated by this study. Future research should establish the interrelationship between sound acquisition and morphological acquisition (e.g.,plural allomorph {s} and the {s} acquisition). Additionally, the lexical-semantic features of the morphemes studied should be investigated. Specifically, research should determine, for each morpheme, which units of meaning or meanings, out of the many that may be signalled by adult speech, are used by the children at different levels of morpheme development (e.g., at the emerging, stable or mastered level). Other goals of future research in this area should include a comparison of the present results with those obtained from children raised in a bilingual (Spanish/English), bicultural environment. It is only through this type of methodology that the question of the effect of bilingualism on the acquisition of Spanish and English can be answered.

APPENDIX A

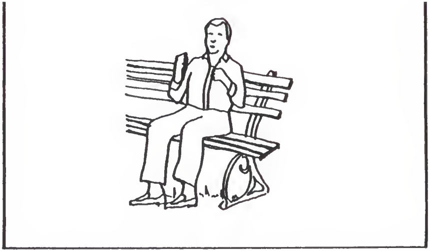
PERCENTAGE OF CHILDREN GIVING CORRECT ANSWERS FOR THE VERBS IN KERNAN AND BLOUNT´S STUDY

Verbs	Age group 5-7	Age group 8-10	Age group 11-12
future tense	30.0%	44.4%	78.9%
present perfect	38.9%	56.7%	83.9%
past tense-imperfect	48.0%	53.7%	54.7
past tense-perfect	32.3%	50.7%	68.7%

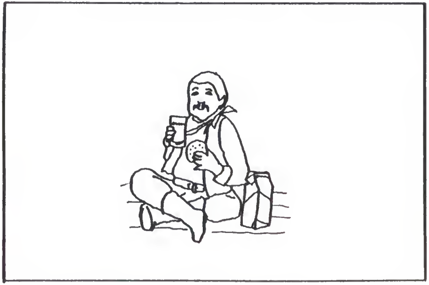
APPENDIX B
RECEPTIVE PICTURE OF SPANISH MORPHOLOGY



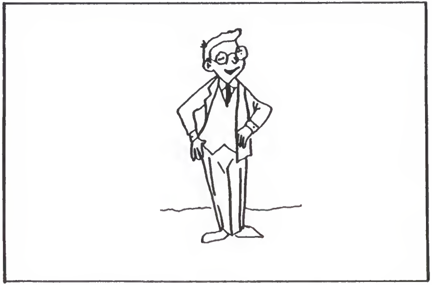
A



B

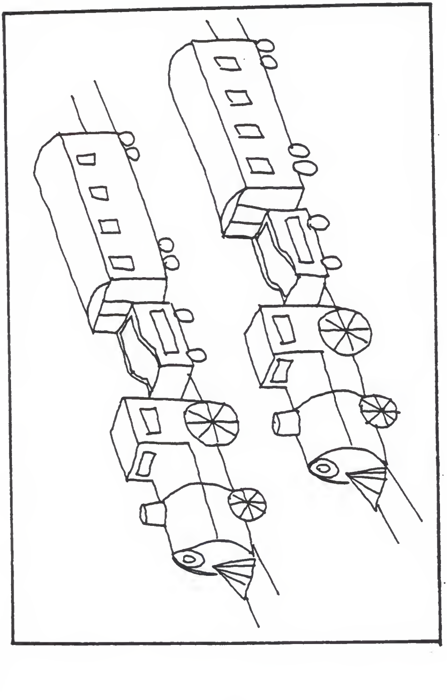


C



D

APPENDIX C
EXPRESSIVE PICTURE
OF SPANISH MORPHLOGY



APPENDIX D
RECEPTIVE ELICITING PROCEDURE OF SPANISH MORPHOLOGY

1. (-s) Sapos..(B)
2. (-ando) Caminando..................................(A)
3. (-ero) Basurero....................................(B)
4. (-dor) Jugador.....................................(D)
5. (-o) Bonito..(B)
6. (de) De los niños..................................(A)
7. (preterite) El niño durmió.........................(D)
8. (periphrastic future) La niña quiere ir a jugar......(A)
9. (present indicative) El pájaro vuela.................(C)
10. (-s) Manos...(C)
11. (-ero) Cartero.....................................(B)
12. (-a) Sucia...(A)
13. (más) Más gordo....................................(D)
14. (periphrastic future) La niña quiere ir a comer......(A)
15. (-es) Ratones......................................(B)
16. (-iendo) Leyendo...................................(A)
17. (-dor) Limpiador...................................(D)
18. (-o) Alto..(C)
19. (más) Más viejo....................................(B)
20. (present indicative) El caballo come.................(C)
21. (-es) Arboles......................................(D)
22. (-ando) Hablando...................................(B)
23. (-a) Cansada.......................................(B)
24. (de) De la niña....................................(A)
25. (preterite) Escribió...............................(C)
26. (-iendo) Cogiendo..................................(B)

APPENDIX E
EXPRESSIVE ELICITING PROCEDURE OF SPANISH MORPHOLOGY

1. (-iendo) La niña quiere comer. Ahora ella esta.........
2. (de) Este es un sombrero. De quien es este sombrero....
3. (-ando) El niño quiere llorar. Ahora el esta...........
4. (present indicative) El bebe tiene sueño. Ahora el esta
5. (-o) Esta niña es gorda. Este niño es..................
6. (-iendo) El hombre quiere correr. Ahora el esta........
7. (periphrastic future) El niño tiene hambre. Que va hacer el niño ? el niño va........... .
8. (-a) Este edificio esta sucio. Esta calle esta.........
9. (present indicative) La niña quiere correr. Ahora ella..
10. (preterite) El perro ladra hoy. Ayer el perro..........
11. (-o) Esta camisa es roja. Este zapato es...............
12. (-ero) El hombre vende leche. Como se llama a un hombre que vende leche ?.........................
13. (preterite) La mujer habla hoy. Ayer ella..............
14. (-a) Este pez es feo. Esta vaca es.....................
15. (-es) Este es un tren. Ahora hay otro. Hay dos.........
16. (más) Este avión es pequeño pero este avion es.........
17. (-dor) El hombre pelea. Como se llama a un hombre que.. pelea ?...
18. (-es) Este es un león. Ahora hay otro. Hay dos.........
19. (más) Este bus es grande pero este bus es.............
20. (-ero) El hombre hace pan. Como se llama a un hombre que hace pan ?................................
21. (-s) Esta es una silla. Ahora hay otra. Hay dos........
22. (periphrastic future) La niña tiene sueño. Que va hacer la niña ? La niña va............
23. (de) Este es un pato. De quien es este pato ?..........
24. (-dor) El hombre vende. Como se llama a un hombre que vende...
25. (-ando) El payaso quiere saltar. Ahora el esta.........
26. (-s) Este es un gato. Ahora hay otro. Hay dos..........

APPENDIX F

PAIRWISE COMPARISONS BETWEEN THE LEVELS OF SEX AND SOCIOECONOMIC CLASSES AND THE FOUR EXPRESSIVE MORPHEMES FOUND TO BE SIGNIFICANT IN THE UNIVARIATE ANALYSIS.

-es	p-value	-ero	p-value	future	p-value	present	p-value
FL-FH	.0071	FL-MH	.0239	FL-FH	.00135	FL-FM	.0041
ML-MM	.0212			FM-FH	.0122	FM-ML	.0041
ML-MH	.0170			ML-MH	.0116	FM-MM	.0041
FL-MM	.02112			FL-MH	.0068	FM-MH	.0037
FH-ML	.0071			FH-MM	.0202		
				FH-ML	.00135		

F= female M= male.

H= high class M= middle class L= low class.

APPENDIX G
PERCENTAGE OF CHILDREN SHOWING 100% MASTERY ON THE RECEPTIVE TASK FOR EACH MORPHEME AT EACH AGE INTERVAL.

Age	-s	-es	-ando	-iendo	-ero	-dor	-a	-o	de	más	preterite	future	present
2-7	33	0	0	0	0	0	33	0	0	33	67	0	0
2-8	40	40	20	40	40	20	20	60	0	20	0	60	20
2-9	20	0	20	20	40	0	0	40	0	20	0	20	60
2-10	0	0	0	0	50	0	50	0	0	50	0	0	0
2-11	25	25	0	0	25	50	25	25	0	50	0	0	0
3-0	40	0	20	0	10	0	0	30	0	20	0	10	10
3-1	50	0	0	0	0	50	0	50	0	0	0	50	0
3-2	0	0	0	0	0	0	0	50	0	50	50	0	50
3-3	50	50	16	25	50	33	0	17	0	67	50	17	33
3-4	16	33	16	0	17	17	17	33	0	0	33	17	17
3-5	50	0	25	16	25	25	25	50	0	0	25	0	25
3-6	20	20	20	0	40	0	0	20	20	60	0	0	40
3-7	60	40	40	20	60	40	20	0	0	40	0	20	20
3-8	75	50	25	50	25	0	75	25	0	75	0	75	0
3-9	20	20	20	0	60	40	40	40	20	40	40	60	60
3-10	57	14	28	28	57	43	0	0	14	71	0	43	14
4-0	50	25	75	25	75	50	25	25	0	75	0	50	25
4-1	80	20	0	20	80	60	0	0	0	60	0	40	0
4-2	75	25	25	25	25	75	0	50	0	50	25	50	50

APPENDIX H
PERCENTAGE OF CHILDREN SHOWING 100% MASTERY ON THE EXPRESSIVE TASK FOR EACH MORPHEME AT EACH AGE INTERVAL.

Age	-s	-es	-ando	-iendo	-ero	-dor	-a	-o	de	más	preterite	future	present
2-7	67	0	33	67	0	0	67	67	67	0	0	0	6
2-8	80	80	80	100	0	0	80	100	100	0	0	40	0
2-9	100	60	20	20	0	0	60	80	80	0	0	20	0
2-10	50	50	30	0	0	0	0	100	0	0	0	0	0
2-11	100	50	100	75	0	0	50	75	100	0	0	25	0
3-0	100	50	80	50	0	0	60	90	80	0	0	20	0
3-1	100	50	100	50	0	0	50	100	100	0	0	50	0
3-2	100	100	100	100	0	0	100	100	100	0	0	0	0
3-3	100	100	100	100	0	0	100	100	100	0	17	67	0
3-4	100	83	100	67	0	0	100	83	100	0	30	50	0
3-5	75	50	75	100	0	0	100	100	75	0	0	25	0
3-6	100	80	100	100	0	0	100	100	100	0	33	40	0
3-7	100	100	80	100	0	0	100	100	100	20	0	60	0
3-8	100	100	100	100	0	0	100	100	100	0	0	75	0
3-9	80	80	80	75	20	20	100	100	100	0	0	60	0
3-10	100	100	100	100	0	0	100	100	100	0	0	100	0
4-0	100	75	100	100	50	0	100	100	100	0	0	50	0
4-1	100	80	100	80	0	0	100	100	100	0	20	80	0
4-2	100	100	100	100	0	0	100	100	100	0	0	50	0

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BIOGRAPHICAL SKETCH

Gerardo Olarte was born in Bogota, Colombia, in 1951. After graduating from the Universidad Pedagogica Nacional with the degree of "Licenciado" in psychology, Mr. Olarte was chosen to receive a scholarship for graduate study at the University of Northern Iowa in Cedar Falls, Iowa. There, Mr. Olarte earned a Master of Arts degree in speech pathology in 1976 and a Master of Arts degree in non-educational counseling in 1977.

Mr. Olarte worked as a speech-language pathologist at the Sunland Training Center in Fort Myers, Florida, obtaining his Certificate of Clinical Competence and his state license in speech pathology. In June of 1978 he began working as a bilingual (Spanish/English) speech-language pathologist at the Easter Seal Society in Miami, Florida. In January of 1980 Mr. Olarte began his own private practice, providing services to bilingual and monolingual (Spanish or English) communication impaired individuals of all ages in the Miami area.

A concern with the lack of research to support testing or therapeutic intervention with bilingual or monolingual (Spanish) individuals led Mr. Olarte to seek additional training and research opportunity. He entered the doctoral program of the Speech Department at the University of Florida in 1982, majoring in speech. While pursuing his doctorate, Mr. Olarte received the graduate certificate in Gerontology and the National Hispanic study award. He was awarded his Doctor of Philosophy degree in May 1985.

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

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This dissertation was submitted to the Graduate Faculty of the Department of Speech in the College of Liberal Arts and Sciences and to the Graduate School, and was accepted as partial fulfillment of the requirements for the degree of Doctor of Philosophy.

May, 1985

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